Final

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: SST Operable Unit
345 Hills, Room 28, Richland, Washington

November 21, 1991

From/
Appvl: Sandra Trine Date: 2/11/92
Sandra Trine, SST Unit Manager, DOE-RL

Appvl: Megan Gerchen Date: 2/11/92
Megan Gerchen, SST Unit Manager,
WA Department of Ecology

Appvl: Doug Sherwood Date: 4/7/92
Doug Sherwood, SST Unit Manager,
EPA Region 10

Appvl: D Pabst Date: 4/7/92
David B. Pabst, WHC, Contractor Representative

Meeting Minutes are attached. Minutes are comprised of the following:

Attachment #1 - Meeting Summary/Summary of Action Items & Agreements
Attachment #2 - Agenda for Meeting
Attachment #3 - Attendance List
Attachment #4 - Status of Action Items & Agreements

Handout 1 - RL Office of Environmental Assurance Organizational Chart
Handout 2 - Hanford Site Waste Tank Safety Programs
Handout 3 - SST Interim Stabilization/Isolation
Handout 4 - High-Heat Tanks Stabilization Program
Handout 5 - Tank 241-C-106 Retrieval
Handout 6 - M-06, M-07, and M-08 Responsibility within WHC
Handout 7 - SST Retrieval Technology, Milestone M-06-00
Handout 8 - Cost/Schedule Status, M-07 and M-08
Handout 9 - SST Tank Characterization Milestone M-10-00
Handout 10 - Status of NPH Cleanup Methodology
Handout 11 - Single-Shell Tank Closure, M-09-00

Distribution

Keimpe Andringa, WHC R2-12
Roy E. Barker, WHC H5-71
James D. Berger, WHC L0-18
Boechler, G.N., WHC R1-17
Guy E. Bishop, RL R2-62
Johnnie Newson, RL R2-62
Michael A. Cahill, WHC S4-57
John M. Clark, RL A4-02
Paula Clark, RL A5-21
J.R. Freeman-Pollard, WHC H4-55
Toby Michelena, Ecology
Carolyn Haass, SWEC A4-35
Vernon Hall, WHC L4-88
Jake Laws, WHC H4-57
Michael J. Minette, WHC R2-12
Ellen M. Matlin, RL A4-02
Brian E. Opitz, WHC R2-83
David B. Pabst, WHC B2-35
Thomas E. Rainey, WHC R1-49
Richard E. Raymond, WHC R1-80
Douglas R. Sherwood, EPA B5-01
Edward H. Smith, WHC B2-19
Richard Wojtasek, WHC L4-92
Bill Winters, WHC T6-50
Thomas W. Wood, PNL K6-25
Rick Raymond, WHC R1-80
Leela Sasaki, WHC R2-12
Don Ball, WHC G6-46
John Garfield, WHC H5-49
Megan Lerchen, Ecology
Fred Ruck, WHC H4-57
Sandra Trine, RL A5-21
Bob Wegeng, PNL K6-25
Al Noonan, WHC R2-12
EDMC H4-22

cc: Ronald Izatt, RL A5-19
Ronald Gerton, RL A4-02
Roger Freeberg, RL A5-19
June Hennig, RL A5-21
Steven Wisness, RL A5-19
Dan Duncan, EPA Region X
Paul Day, EPA Region X

ADMINISTRATIVE RECORD (SST) [Care of Susan Wray, WHC]

Washington State Department of Ecology, Nuclear and Mixed Waste Library, Mail Stop PV-11

Environmental Protection Agency Region 10, Mail Stop HW-074

Attachment 1

UNIT MANAGERS MEETING: SINGLE-SHELL TANKS
MEETING SUMMARY/SUMMARY OF ACTION ITEMS AND AGREEMENTS

November 21, 1991

1. The meeting commenced at 9 a.m., and introductions were made of those present. Sandra Trine (RL) is the new Single-Shell Tanks System ~~Project~~ Program Manager.

2. An organizational chart was distributed of the Office of Environmental Assurance (See Handout 1). Responsibility within RL for SST milestones was given as follows:

   M-05-00 - Guy Bishop
   M-06-00 - Paula Clark
   M-07-00 - Sandra Trine
   M-08-00 - Sandra Trine
   M-09-00 - Sandra Trine/Nancy Werdel
   M-10-00 - John Clark

3. A presentation was given by WHC (Deichman) on the status of waste tank safety programs (See Handout 2). An overview was given of the waste tank program from generation to disposal. Three priorities of tank safety issues were discussed: 1) Issues/situations which contain most of the necessary conditions that could lead to onsite or offsite worker radiation exposure through an uncontrolled release of fission products from Tank 101-SY, 2) Issues/situations which contain some conditions which could lead to an uncontrolled release of fission products under extreme assumptions, and 3) Issues/situations which could lead to the future release of fission products if tanks are viewed as intermediate (five-year) storage of high-level waste (HLW). Status was given that programs for mitigation/remediation have not been completed for the three priority issues. Ecology (Lerchen) requested a copy of a report of the chemical analysis of the contents of Tank 101-SY.

ACTION ITEM 11-20-91:1: Provide Ecology with a report of the chemical content of Tank 101-SY. Action: John Deichman and Guy Bishop.

4. SST Interim Stabilization/Isolation was discussed by WHC (Raymond) in a presentation (See Handout 3). Topics covered included recent activities accomplished as well as issues/concerns and their corresponding corrective actions. The single-shell tank stabilization restart has been delayed due to equipment failures, noxious vapors in C Farm, operational problems with lock and tag, and in-farm transfers. Included in Handout 3 is the schedule for restart recovery. Ecology (Lerchen) requested data on the vapor space analyses in C Farm.

ACTION ITEM 11-20-91:2: Supply data for vapor space analyses on C Farm to Ecology. Action: Rick Raymond and Guy Bishop.

5. WHC (Wilson) gave a presentation on Hanford high-heat tanks stabilization program (See Handout 4). The near-term objectives of the tank

stabilization program involve mitigation efforts which include the implementation of a process test to stabilize Tank 105-C and the implementation of a process test for Tank 106-C. If Tank 106-C can be dried out and it can be demonstrated that stabilization is established so that no water will leak to the ground, WHC considers that this will exceed a portion of the milestone by four years.

6. WHC (Henderson) gave a presentation Tank 241-C-106 retrieval (See Handout 5). WHC (Henderson) stated that the description laid out shows that FY99 is probably the earliest that the waste could be removed from Tank 241-C-106 without using something the past-practice technique of sluicing, and the sluicing technique does have an environmental risk.

   A video tape lasting approximately three minutes was shown which portrayed the sluicing retrieval option for Tank 241-C-106. A copy of this video tape was requested by Ecology. The video tape has not completed the clearance process for release.

ACTION ITEM 11-20-91:3: Provide Ecology with the sluicing retrieval video once it has been cleared by DOE. Action: Mark Henderson and Johnnie Newson.

7. The subject of new assignment responsibilities within WHC on milestones M-06, M-07, and M-08 was covered (See Handout 6).

8. A presentation was made on Single-Shell Tank retrieval Technology by WHC (Berger) which is included as Handout 7.

9. Status was given by WHC (Henderson) on the cost and schedule status of Milestones M-07 and M-08 (See Handout 8).

10. Topics associated with Single-Shell Tank characterization related to Milestone M-10-00 were presented by RL (J. Clark) and is summarized in Handout 9. The presentation topics covered: Monthly accomplishments, Near-Term TPA Milestones, Near-Term Core Sampling Schedule, Modified Analysis Plan for SSTs containing ferrocyanide (FeCN), NPH cleanup methodology of PNL, Issues and concerns of FY 92 funding and RL/Ecology approval of safety assessment and NEPA documentation to proceed with FeCN sampling at Tank 241-C-112, Cost and schedule status, and the M-10-13 Change Request.

    The subject of FeCN identification methods was discussed. Ecology (Lerchen) noted that the regulatory required cyanide test does not necessarily delineate FeCN. Ecology is not convinced that testing on quartered samples will yield any additional information.

11. PNL (Jones) gave a presentation on NPH Cleanup Methodology Development (See Handout 10). RL (Trine) suggested a presentation be planned for representatives from the analytical laboratory to discuss aspects of the inadequacy of lab capacity to meet the needs of the sampling schedule.

ACTION ITEM 11-20-91:4: Arrange for personnel from the analytical lab to give presentation at a Unit Managers Meeting on laboratory status. Action: S. Trine.

12. A brief discussion was led by WHC (Pabst) on the M-10-13 Change Package. This change package is an administrative change; at this time, it is planned that the M-10-13 Change Package will require the signatures of the Project Managers because it is a Class II change to the TPA.

13. Discussion of the subject of the Waste Characterization Plan review status was led by Ecology (Lerchen). WHC (Noonan) stated that, at this time, the Plan is designed for composite analyses, and materials are being archived. Ecology (Lerchen) stated that Ecology will not at this point be able to approve a plan in which segment analysis is not included; the intent of the analytical campaign is to support "leave and retrieve," and those criteria have not been developed. In Ecology's view, the decision for leave or retrieve is not necessarily supported by composites, except for a retrieve-only decision.

14. A presentation by WHC (Hall) on Milestone M-09-00 was a last-minute addition to the meeting agenda (See Handout 11).

15. WHC (Hall) asked about a time frame for Ecology response to the System Closure Corrective Action Work Plan which was recently initiated. WHC would like to have the Plan ready for distribution in March 1992, and this schedule depends on Ecology's ability to review. Ecology (Lerchen) suggested that WHC highlight the important issues in order to facilitate response. Ecology personnel presently have extensive time commitments, due in part to the forthcoming RCRA Part B Permit for Hanford, and Ecology (Lerchen) does not foresee being able to formally comment before March 1992.

16. The next Single-Shell Tank Unit Managers Meeting is scheduled for December 12, 1991 in Richland, Washington.

Attachment 2

UNIT MANAGER MEETING: SST Operable Units
November 21, 1991
AGENDA

- Introductions
- RL Organization Update
- Tank Farm Safety Issues - Status
- SST Stabilization Restart
- C-Farm Vapors - Status
- Tank Farm Physical/Material Conditions
- Out-Year Stabilization Planning
- Cost/Schedule Status, M-05-00
- SST 241-C-106, Concepts Being Studied for Closure
- Break
- M-06-00, M-07-00, M-08-00 Responsibility Assignments
- Retrieval Technology - Evaluation of Progress to Date
- Technology Development Applicable to SST, Off-Hanford
- SST Technology Milestone Completion Definition - Status
- Cost/Schedule Status, M-06-00
- Cost/Schedule Status, M-07-00, M-08-00
- Break
- M-10-00 Status
- Near Term Core Sampling Activity
- NPH Cleanup Methodology
- M-10-13 Change Request
- Waste Characterization Plan - Review Status
- Cost/Schedule Status, M-10-00
- General Discussion
- Adjourn

Attachment 3

SST Operable Units Unit Managers Meeting
Attendance List

November 21, 1991

Name	Organization	Phone Number
James Berger	WHC	509-376-9942
John M. Clark	RL	509-376-2246
Paula Clark	RL	509-376-4718
John Deichman	WHC	509-373-2238
Vernon Hall	WHC	509-376-0286
Carolyn Haass	SWEC	509-376-9618
Mark Henderson	WHC	509-373-1783
June Hennig	RL	509-376-0016
Tom Jones	PNL	509-376-3273
Kathy Knox	CNES	509-376-5011
Glenn R. Konzek	RL	509-372-0832
Jake R. Laws	WHC	509-379-7508
Megan Lerchen	Ecology	206-438-3089
R.T. Miller	WHC	509-376-2622
Johnnie E. Newson	DOE	509-373-5951
Al Noonan	WHC	509-373-5191
Brian Opitz	WHC	509-373-9372
David Pabst	WHC	509-376-9048
Rod Powell	WHC	509-376-9618
Rick Raymond	WHC	509-373-2785
Kurt Silvers	WHC	509-373-3319
Edward H. Smith	WHC	509-376-0234
Sandy Trine	RL	509-376-6943
George R. Wilson	WHC	509-373-5823

Attachment 4

Single-Shell Tank System
November 20, 1991
Status of Action Items and Agreements

Action Item/Agreemt	Action Required
SST.1/30/90-01 CLOSED	Ecology to meet with WHC/DOE February 15, 1990 to establish data quality objectives.
SST.1/30/90-02 CLOSED	WHC to revise Plan to incorporate EP Toxicity Testing less data quality objectives for February 15, 1990 meeting.
SST.Agreement CLOSED	Option 2 is acceptable - less impact on progress. Presentation of resolution to Ecology management; Class 2 change for Project Manager's signature.
SST.3/23/90-03 CLOSED	DOE/WHC will decide internally the approach for testing. It will be decided whether to stay with the "EP-Toxicity Test Plan for Phase IA/IB Characterization of Single-Shell Tank Wastes" or choose another approach. This decision will be communicated to Ecology by March 30, 1990.
SST.3/23/90-04 CLOSED	Ecology will develop the number of samples required, and transmit this information to DOE/WHC by March 30, 1990.
SST.Agreement CLOSED	Ecology approved Test Plan, given that DOE/WHC chooses to use it (See Action #SST.3).
SST.3/23/90-05 CLOSED	DOE will develop a brief summary on and introduction to the retrieval program. DOE will present this during the next SST Unit Managers Meeting.
SST.Agreement CLOSED	Next SST Unit Managers meeting will be April 24, 1990.
SST.4/30/90-06 CLOSED	DOE will provide a presentation on Performance Assessment. STATUS-An initial presentation has been provided, additional information and presentations on this subject will be scheduled quarterly.
SST.4/30/90-07 CLOSED	DOE will consider submittal of plan IC to regulators at the time of DOE review. RESPONSE-IC Plan will be submitted to Ecology after DOE's review.

SST.6/27/90-08 CLOSED	WHC will meet Milestone 6-01 with a letter report that identifies the waste retrieval technologies being considered. This report will include information about the recommendation of the engineering studies, the results from feature tests, and the conceptual design studies for mechanical arm systems.
SST.6/27/90-09 CLOSED	DOE/WHC agreed to provide a forum for discussions of the Developmental and Operational Support Facility conceptual designs during the next SST UMM.
SST.Agreement CLOSED	Ecology was in agreement with the selection criteria for the demonstration tank being established and approved earlier than that scheduled in the TPA (M-07-01, Oct. 1993).
SST.6/27/90-10 CLOSED	DOE/WHC will find out the status of the Core 16 sample.
SST.6/27/90-11 CLOSED	DOE will determine an approach to discuss the TCLP issues at unit manager meeting.
SST.6/27/90-12 CLOSED	Ecology will discuss expectations for TCLP analysis.
SST.6/27/90-13 CLOSED	DOE will discuss the written responses to Ecology NOD comments on the SST Work Plan during the next UMM. NOD responses of specific interest to Ecology include 11, 13, 14, 18, 32, 48, 58, 68, 39; and 37 which will be answered.
SST.6/27/90-14 CLOSED	DOE will bring a copy of the engineering study, copies of the system analysis, and the functional requirements baseline.
SST.6/27/90-15 CLOSED	EPA and Ecology will look at the regulatory aspects of closure of the SSTs as a landfill.
SST.Agreement CLOSED	The April 1990 SST unit manager meeting minutes were signed off with no comments.
SST.8/16/90-16 CLOSED	WHC agreed to update the Summary Table for the data packages and attach with SST unit manager meeting minutes.
SST.8/16/90-17 CLOSED	WHC will document strategy for the SST Operable Units. This action is closed pending other actions from the SST Unit Manager's Meeting held 11/20/90.

SST.10/11/90-18 CLOSED	WHC will clarify what order the data reports for 110-B and 110-U will be transmitted to Ecology and EPA.
SST.10/11/90-19 CLOSED	WHC will provide EPA and Ecology with the T-106 Leak Simulation Report.
SST.10/11/90-20 CLOSED	WHC will identify what the schedule impact would be to move equipment from B-Tank Farm to T-Tank Farm, and will discuss at the next Unit Manager's Meeting on November 20, 1990.
SST.10/11/90-21 CLOSED	WHC will provide Ecology and EPA with the Material Safety Data Sheet for the simulated sludge material used for %testing.
SST.10/11/90-22 CLOSED	WHC will forward in-tank photographs of 110-B, 110-U, and the 5 candidate tanks for IC sampling to EPA and Ecology.
SST.10/11/90-23 CLOSED	WHC will forward a copy of the following reports to EPA and Ecology as soon as the documents have cleared: - WHC-SD-ER-TRP-001, "Air Conveyance" - WHC-SD-ER-TRP-002, "Needle Scaler" - WHC-SD-ER-TRP-003, "Sine Pump" - WHC-SD-ER-TRP-004, "Air/Water Jet"
SST.10/11/90-24 CLOSED	WHC will send available validated data to Ecology and EPA by October 19, 1990 or notify the agencies otherwise.
SST.10/11/90-25 CLOSED	WHC will check on a document containing diagrams of 110-B and 110-U sampling diagrams and forward this document to EPA and Ecology (if cleared).
SST.10/11/90-26 CLOSED	WHC will provide a presentation to EPA and Ecology on strategy for the Single Shell Operable Units at the next Unit Manager's Meeting.
SST.10/11/90-27 OPEN	Representatives should be prepared to discuss validated data sets for 110-U and 110-B at the next Unit Manager's Meeting.
SST.10/11/90-28 OPEN	WHC will forward a copy of the Performance Assessment Strategy Document for SST's to EPA and Ecology as soon as it is available.
SST.10/11/90-29 CLOSED	WHC will confirm the 400°F drilling temperature on the saltcake.

SST.11/20/90-30 CLOSED	DOE/WHC will submit the first two sets of data packages for 110-U by December 7, 1990.
SST.11/20/90-31 OPEN	EPA/Ecology will submit a list of the areas for discussion and the types of questions that may need to be answered regarding sample data packages at the next Unit Manager's Meeting so that appropriate personnel can be made available to answer questions about data packages.
SST.11/20/90-32 OPEN	DOE will check into issuance and transmittal of cryogenic vapor space sampling data for 103-C to WDOE and EPA.
SST.11/20/90-33 OPEN	All representatives will be prepared to continue the discussion regarding designation of the SST's as RCRA Past Practice (RPP) Units or as Treatment, Storage, and Disposal (TSD) Units.
SST.2/06/91-01 CLOSED	WHC will supply a proposed summary chart of status for all SST tanks to Ecology.
SST.2/06/91-02 CLOSED	DOE-RL will supply a copy of the Wyden Amendment to Ecology.
SST.2/06/91-03 CLOSED	Ecology stated that they will inform WHC which data packages they have received.
SST.2/06/91-04 CLOSED	WHC promised the expected schedule of tank pumping with durations to Ecology.
SST.2/06/91-05 CLOSED	DOE-RL/WHC promised the rest of the data packages to Ecology by the end of March, 1991.
SST.2/06/91-06 CLOSED	WHC will transmit a copy of the drill bit temperature study to Ecology as soon as the document is cleared.
SST.5/08/91-07 CLOSED	WHC will transmit by May 15, 1991, the letter to support the TPA change request for stabilization of tanks.
SST.5/08/91-08 OPEN	EPA and Ecology agreed to make presentations of their respective viewpoints on the aggregate area approach as applicable to SSTs.
SST.10/09/91-01 CLOSED	Have a representative from Hanford Industrial Safety contact Ecology (M. Lerchen) and provide information regarding the testing and analysis being conducted on the fumes emanating from 241-C Farm. Action D. Pabst (WHC).
SST. 10/09/91-02 CLOSED	Contact RL (J. Clark) or WHC (Propson) regarding the need by Ecology to process the Waste Characterization Plan, Revision 3, for public review and comment, thereby

increasing the time required for comment by Ecology. Action: M. Lerchen (Ecology).

SST.10/09/91-03 OPEN — Assignee: A. Noonan (WHC) Due Date: 12/1/91. Provide to the Regulators the methods and data demonstrating that NPH cleanup methods actually succeed in cleaning up NPH. Include laboratory results in the response.

SST.10/09/91-04 CLOSED — Provide to the Regulators the updated RL organization chart stating Single-Shell Tanks responsibilities and points of contact. Action: J. Hennig (RL).

SST.11/20/91-01 OPEN — Provide Ecology with a report of the chemical content of Tank 101-SY. Action: John Deichman and Sandra Trine.

SST.11/20/91-02: OPEN — Supply data for vapor space analyses on C Farm to Ecology. Action: Rick Raymond and Sandra Trine.

SST.11/20/91-03: OPEN — Provide Ecology with the sluicing retrieval video once it has been cleared by DOE. Action: Mark Henderson and Johnnie Newson.

AGENDA
TRI-PARTY AGREEMENT
Unit Managers Meeting

February 11, 1992, 10:30 a.m. to 4:30 p.m.
Hanford Science Center, Visitors Conference Room, Richland, Washington

Time	Topic	Presenter DOE/Contractor
10:30	Introductions and Opening Remarks	Trine/Pabst
10:35	DOE-RL Re-Organization - Discussion	Trine
10:40	January 28, 1992, Tank Farm Event and Impacts	Bishop/Raymond
11:10	Safety Issues Impact on Stabilization and Isolation	Bishop/Wilson
11:30	SST Stabilization Status To include: Cessation of All Pumping; Current Pumping Status; 241-C-102 Pumping Status; S-, T-, and U-Farm Preparation and Schedule Status; and Cost/Schedule Status, M-05-00	Bishop/Raymond
12:15	Lunch	
1:00	SST Retrieval Technology Development Status To include: M-06-00 Completion Definition Plan Status; Demonstration Model Tank Concept; and, Waste Retrieval Testing Schedule	P. Clark/Mahaffey
1:30	Tank Waste Remediation Systems Organization	Trine/Henderson
1:50	Retrieval Demonstration Status	Trine/Henderson
2:00	SST Closure Planning Status	Trine/Ruck
2:15	Break	
2:30	Analytical Laboratory Capacity and Throughput	Wanek/Kessner
3:00	Waste Tank Sampling and Characterization To include: Organic Cleanup Methodology; Near Term Sampling Schedule; and, Cost Status, M-10-00	J. Clark/Propson
4:00	SST Performance Assessment Strategy (SEIS), Preliminary	Trine/Sonnichsen
4:30	Adjourn	
	SPECIAL DISCUSSION TOPIC	
4:45	Discussions on Draft "Integrated Plan, Sampling and Analysis of Hanford Wastes Measuring Greater Than 10mREM Per Hour"	J. Clark/Propson

Handout 1

OFFICE OF ENVIRONMENTAL ASSURANCE, PERMITS AND POLICY

Office of Environmental Assurance Permits and Policy (EAP) (2)

Izatt, R.D.	Program Manager
Vacancy	Secretary

Tri-Party Agreement Project Branch (TPA) (10)

Wisness, SH	Sup. Gen. Engr.
Clarke, KV	Program Analyst
Konzek, G**	Mech. Engr.
Rasmussen, JE	Gen. Engr.
Semmens, L**	Mech. Engr.
Thompson, M	Hydrologist
Trine, SL	Chem. Engr.
Yerxa, J.	Business Mgmt.
Vacancy	TPA Coordinator
Josephson, J	Secretary

Regulatory Policy, Planning and Analysis Branch (RPA) (10)

Holt, RG	Suprvsy. Phys. Scientist
Dagan, E	Chem. Engr.
Dunigan, PFX	Phys. Scientist
Krupin, P	Phys. Scientist
Pietrok, TP	Civil Engr.
Teimouri, A	Env. Protect. Specialist
Vacancy	Hanford Mission Plan
Vacancy	Engr/Scientist
Vacancy	Engr/Scientist
Sakach, L	Secretary

Regulatory Permits Branch (RPB) (09)

Vacancy*	Supr. Gen. Engr.
Clark, CE	Phys. Scientist
Krekel, R	Nuclear Engr.
Mamiya, L	Intern (M/E)
Rodriguez, A	Phys. Scientist
Stites, S	Phys. Scientist
Vacancy	Gen.Engr/Phys. Scientist
Vacancy	Gen.Engr/Phys. Scientis
Vacancy	Engr/Scientist
Vacancy	Secretary

General Notes:

* Holt acts as Branch Chief until position filled
** Details NTE 120 days

Hanford Site
Waste Tank Safety Programs

presented to

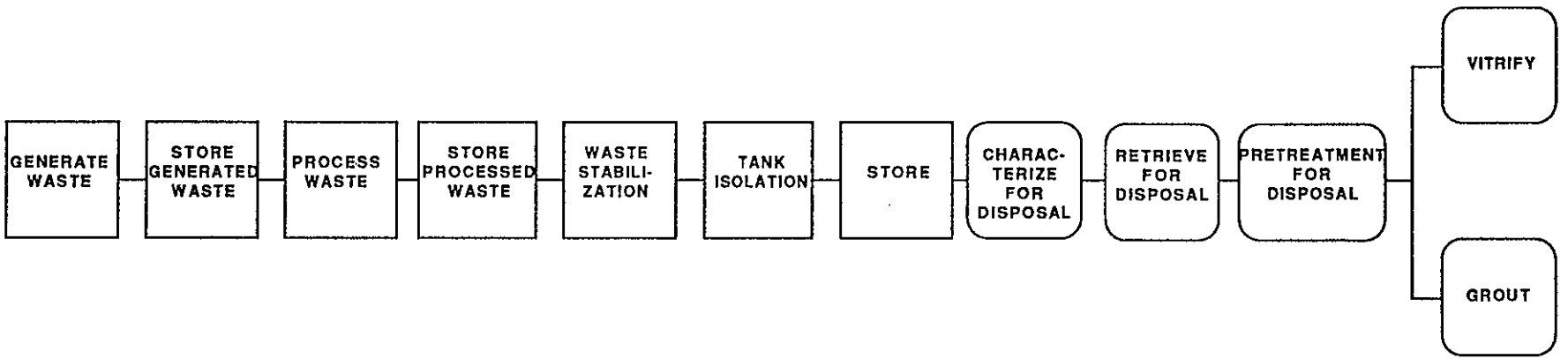
Single-Shell Tanks Unit Managers' Meeting

by

J. L. (John) Deichman
Westinghouse Hanford Company
November 21, 1991

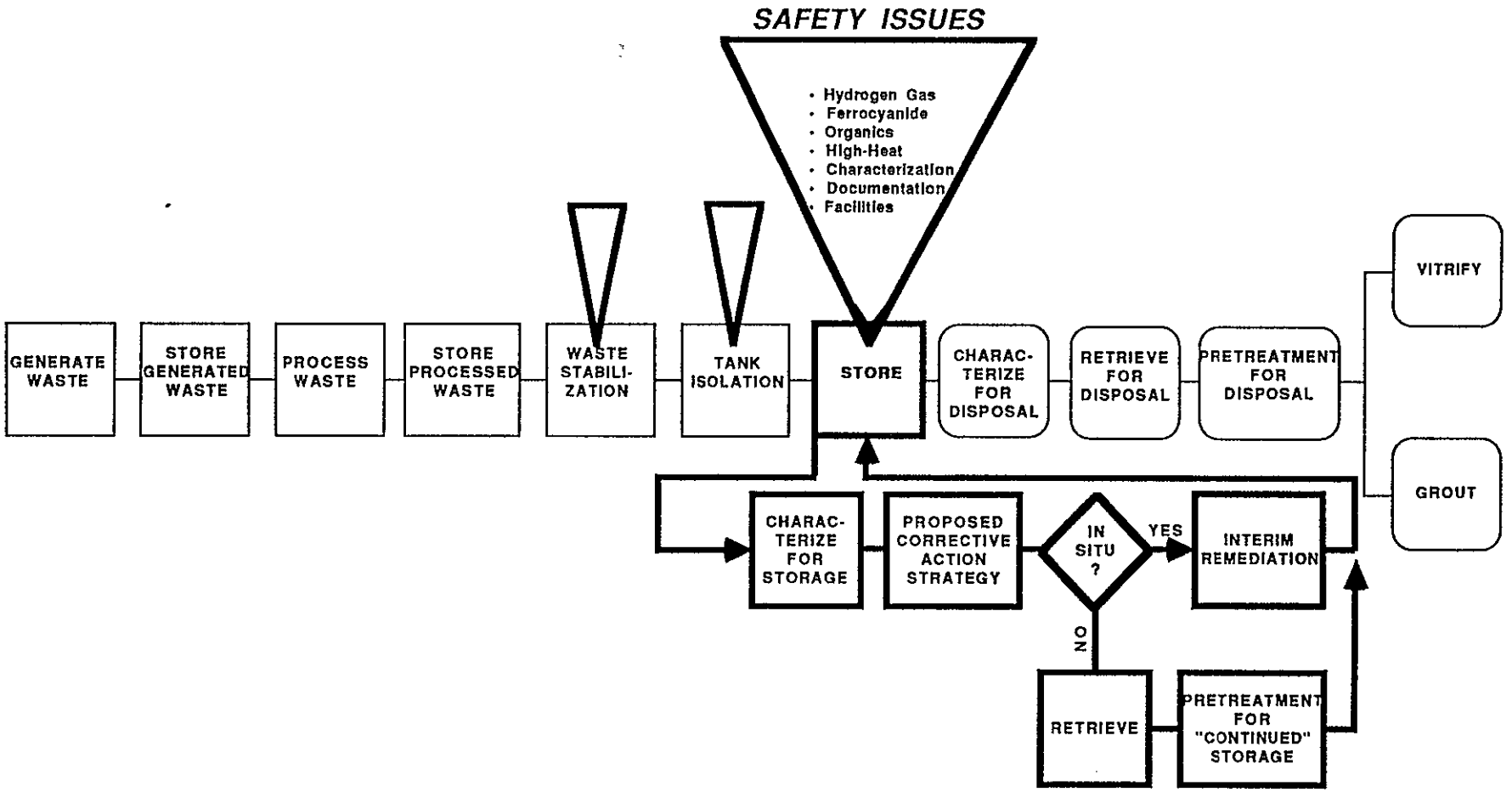
WASTE TANK PROGRAM

General Overview: Generation to Disposal



WASTE TANK SAFETY PROGRAM

Effect of Waste Tank Program



HANFORD SITE TANK FARM SAFETY ISSUES

Priority 1:

"Issues/situations that contain <u>most</u> necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products, e.g., Tank 101-SY."

1. Hydrogen gas generation in 101-SY and other tanks
2. Potential explosive mixtures of ferrocyanide in tanks
3. Potential organic-nitrate reactions in tanks
4. Continued cooling required for high heat generation in Tank 106-C

PRIORITY 1 WASTE TANK SAFETY ISSUES

1. Hydrogen Gas Generation in 101-SY and Other Tanks

Issue: Unreviewed Safety Question

Potential release of flammable gases in concentrations above the lower flammability limit in conjunction with an ignition source (18 SSTs and 5 DSTs)

Status: Identification of the mechanism occurring to cause the episodic releases in 101-SY (most active tank)

- May 1991 Window

  * Installed additional tank gas monitoring instrumentation
  * Installed TV cameras
  * Retrieved crust samples
  * Retrieved core sample
  * Installed radar surface level detector

Plans: Develop and employ potential mitigation alternatives

Develop and implement a longer-term (10-30 year) remediation corrective action strategy

PRIORITY 1 WASTE TANK SAFETY ISSUES

2. Potential Explosive Mixtures of Ferrocyanide in Tanks

Issue: Unreviewed Safety Question

Could the concentrations and distribution of ferrocyanide and nitrate/nitrite in the tanks lead to an explosion if allowed to heat up or if an uncontrolled exothermic reaction should occur (24 SSTs)

Status: Through laboratory studies, modeling, monitoring, and characterization gain a better understanding of the ferrocyanide distribution and reactivity for the tanks

- Installed continuous temperature monitoring
- Preparing to sample tank gases and contents

Plans: Develop a position paper to lay out the status of the ferrocyanide issue

Continue to pursue a technical basis for mitigation, remediation, or continued storage in current manner

PRIORITY 1 WASTE TANK SAFETY ISSUES

3. Potential Organic-Nitrate Reaction in Tanks

Issue: High organic concentrations in the tanks could support rapid exothermic reactions

Status: A program to attack the technical issues is being developed. It will involve modeling, sampling, monitoring, and characterization

Much of what is being developed for the other Priority 1 safety issues is applicable to this issue

Plans: Continue to define the technical basis for mitigation and/or remediation

PRIORITY 1 WASTE TANK SAFETY ISSUES

4. Continued Cooling required for High-Heat Generation in Tank 106-C

Issue: Without cooling water additions (in the event of a leak) tank could exceed structural temperature limits resulting in potential tank collapse

Status: Partial retrieval remediation (8-12 years) is being pursued as the preferred alternative

Alternatives to continuous cooling in the near-term are being investigated (in the event of a leak)

Plans: Continue with the development and implementation of partial retrieval

Evaluate near-term alternatives to water additions for cooling in the event of a tank leak

PRIORITY 2 WASTE TANK SAFETY ISSUES

"Issues/situations that have present (or contain) some conditions that could lead to an uncontrolled release of fission products under extreme assumptions."

1. *Insufficient Tank Contents Characterization to Support Evaluations*

Status:
- Sample schedule to meet TPA milestones being developed
- Priority 1 safety tanks will be given priority on schedule

2. *Inadequate Safety Documentation*

Status: All tank farm SARs and OSRs are being rewritten and consolidated to meet new requirements

PRIORITY 2 WASTE TANK SAFETY ISSUES (Continued)

"Issues/situations that have present (or contain) some conditions that could lead to an uncontrolled release of fission products under extreme assumptions."

3. Tank Safety Operating Life

Status: Planning underway to "verify" and monitor tank useful life

4. Double-Shell Tank Space Requirements

Status:
- Integrated requirement study underway
- Additional tanks are expected to be authorized in FY 1992

PRIORITY 2 WASTE TANK SAFETY ISSUES (Continued)

"Issues/situations that have present (or contain) some conditions that could lead to an uncontrolled release of fission products under extreme assumptions."

5. Upgrades of operations, equipment, and facilities

- *Conduct of operations*
- *Plant essential drawings*
- *Tank farm facilities and equipment*
- *Instrumentation*
- *Tank Toxic vapor releases*
- *Leaking catch tank*
- *Single-shell tank leak detection*
- *Single-shell tank emergency pumping*
- *Response to a leaking double-shell tank*

Status:
- Multi-facetted programs to improve training, maintenance, equipment, and facilities are in place
- Front-end engineering for capital is in progress, but is creating a downstream bow wave

PRIORITY 3 WASTE TANK SAFETY ISSUES

"Issues/situations that could lead to the future release of fission products if tanks are viewed as intermediate storage (5-years) of High-Level Waste (HLW), e.g., Corrosion/leakage, operating practices, buried single wall transfer lines."

1. *Single-shell tank sealing to prevent instrusions*

Status: Schedules are being developed to meet TPA milestones

2. *Double-shell tank safety upgrades*

- *Transfer lines concrete integrity and secondary containment compliance*
- *AZ tank farm ventilation lines*
- *Excessive hydroxide consumption in Tank 107-AN*
- *Improved leak detection*
- *Intertank ventilation connections*

Status: Programs for mitigation/remediation have not been completed for these Priority 3 issues

Single Shell Tanks
Interim Stabilization/Isolation

R. E. Raymond

Accomplishments

Stabilization (1W3B7)

241-BY Tank Farm (Tanks BY-102, 109)

- P 107,921 gallons pumped from BY-102
- P 68,316 gallons pumped from BY-109

241-S Tank Farm (Tanks S-101, 103, 106, 107, 108 109, 110)

- P Saltwell screen installation completed in S-101 and S-107
- P Jet Pump Decontamination Procedure in review
- P Jet Pump and jumper fabrication complete

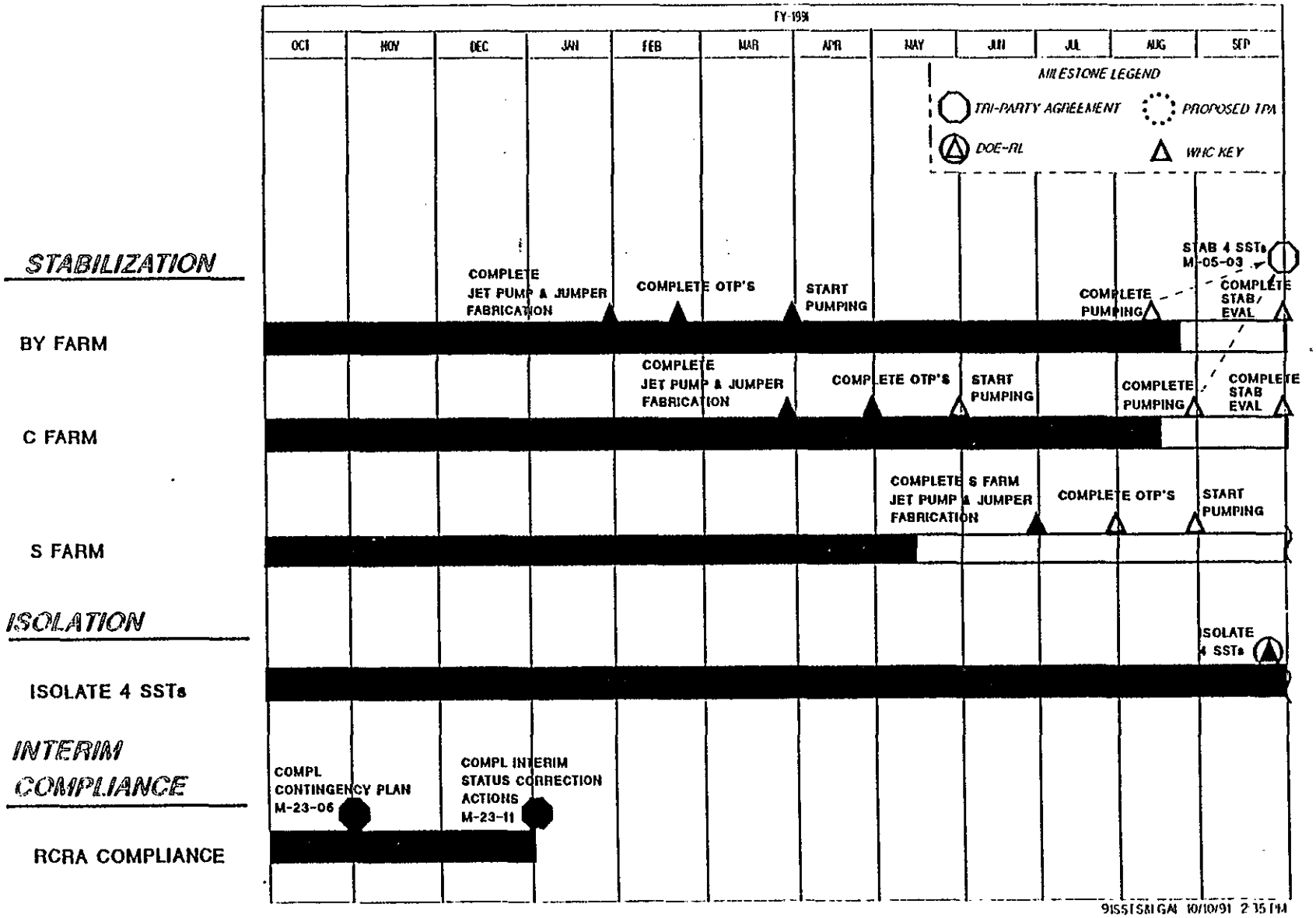
Isolation (Tanks BY-111, BY-112, BY-104, and BY-108)

- P Isolation complete on 4 SST's

Planned Activities Not Accomplished	Corrective Actions
241-C Tank Farm - Start Pumping	Obtain approval to start from Secretary of Energy
Complete Interim Stabilization of 4 SST's (M-05-03)	Obtain approval to start from Secretary of Energy
241-S Tank Farm - Complete OTPs	Verify condition of S Farm so schedule can be prepared

1W3B SST STABILIZATION & ISOLATION

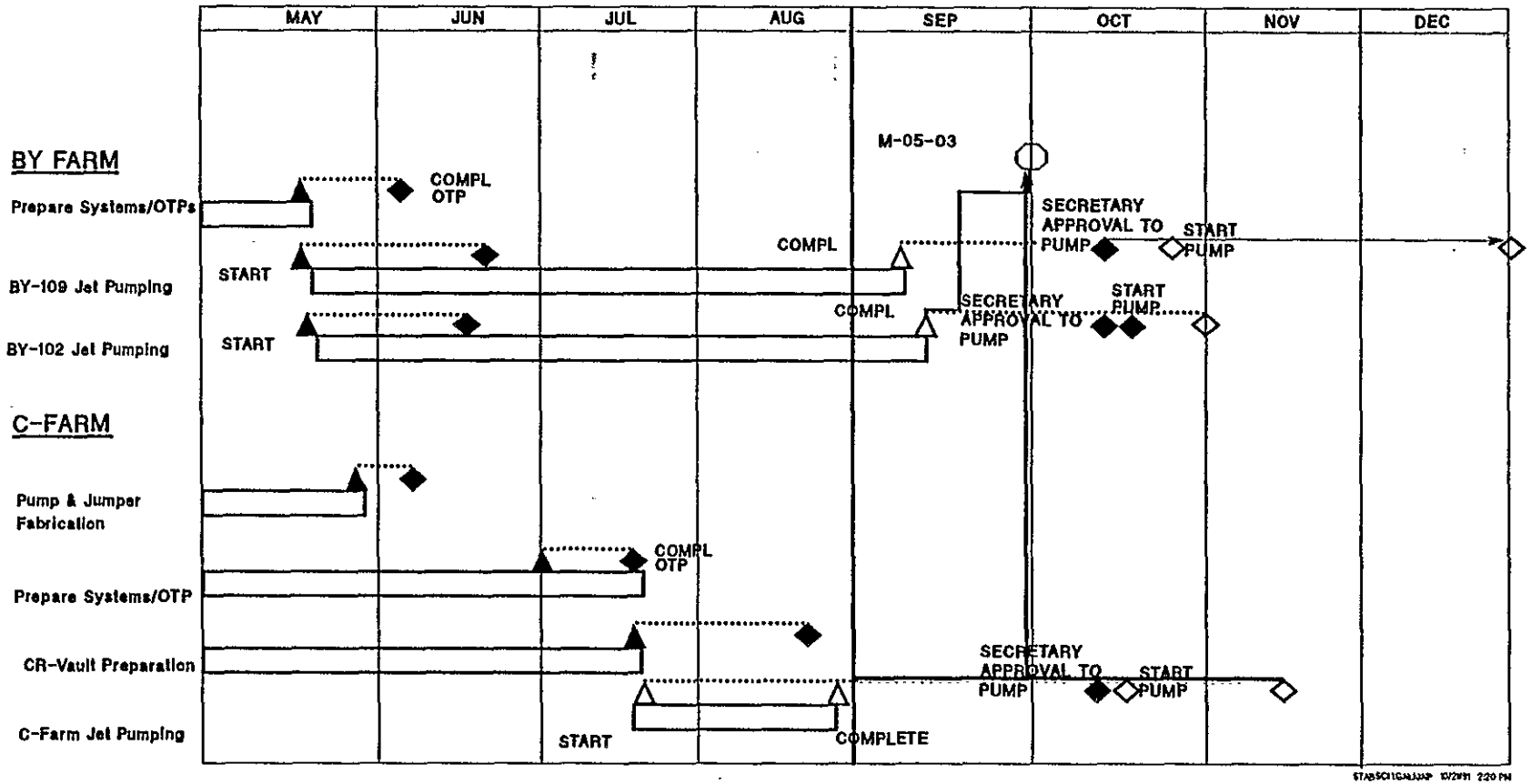
SEPTEMBER



STABILIZATION RECOVERY SCHEDULE

SEPTEMBER

Updated as of 10/18/91



SST Stabilization/Isolation

Issues/Concerns

Issues/Concerns	Corrective Action Required
Pumping stopped on BY Farm and was not allowed to start in C Farm due to concerns of possible leaks into "watch list" tanks.	Secretary of Energy determine that in accordance with the Wyden Amendment, no safer alternative exists to accomodate transfers of waste, and authorizes restart of stabilization activities in BY and C Farms only.
Out year SST Stabilization and Isolation milestones required revalidation of schedule/budget.	Physical condition of S,T & U Farms will be field verified. Report due June 1992 will validate schedule/budget to complete interim stabilization and isolation on all SSTs. In addition safety studies for both "watchlist" and "nonwatchlist" tanks will be factored into schedules.

Single-Shell Tank Stabilization Restart

Restart has been delayed due to:

- **Equipment Failure**

  - **FIC 109-BY**
  - **Manual Tape 244-BX**
  - **Foot Valve 110-C**

- **Noxious Vapors in C-Farm**

- **Operational Problems**

  - **Lock and Tag**

- **Other In-Farm Transfers**

Current Restart Recovery Schedule

o C-Farm	Plan	Actual
- Route Set-Up	11/19	11/19
- Route Verification	11/19	11/19
- Route QC	11/19	11/19
- Pump Flush	11/19	11/19
- Pump Re-circulation	11/19	11/19
- Transfer Valves open	11/20	11/19
o BY-Farm		
- BY-102	10/11	10/11
- Repair FIC or Waive Requirement	11/18	11/18
- Repair Manual Tape 224-BX	11/22	
- Pump Flush	11/23	
- Pump Recirculation	11/23	
- Transfer Valves Open	11/23	

Tank Farm Physical or Material Condition

- o Non-Watch list tanks (2-BY + 3-C + 7-S + 2-T + 2-U = 16)
  - S-Farm (7 Tanks)

    Field Verification Work 95% Complete
  - T and U Farm (2 tanks in each farm)

    Field Verification In Progress, To Be Complete By December 30, 1991
  - Non-Watch List Safety Study Required Prior To Start-Up Of Any Other Tanks
  - Resource Loaded Schedule To Be Issued In January For Non-Watch List Tanks

Tank Farm Physical or Material Condition (continued)

- Watch-List Tanks (27 tanks)
  - Field Verification (Winter And Early Spring)
  - Criteria and Schedule to be Issued in June 1992 for non-Watch List Tanks

Major Milestone M-05 Financial

Data Summary ($000)

	BCWS	BCWP	ACWP	EAC	BAC
FY-91	10347	8410	8100	8100	10347
FY-92FYTD	751*	543*	375	6200*	6200*

* Estimate, milestones and cost accounts not finalized.

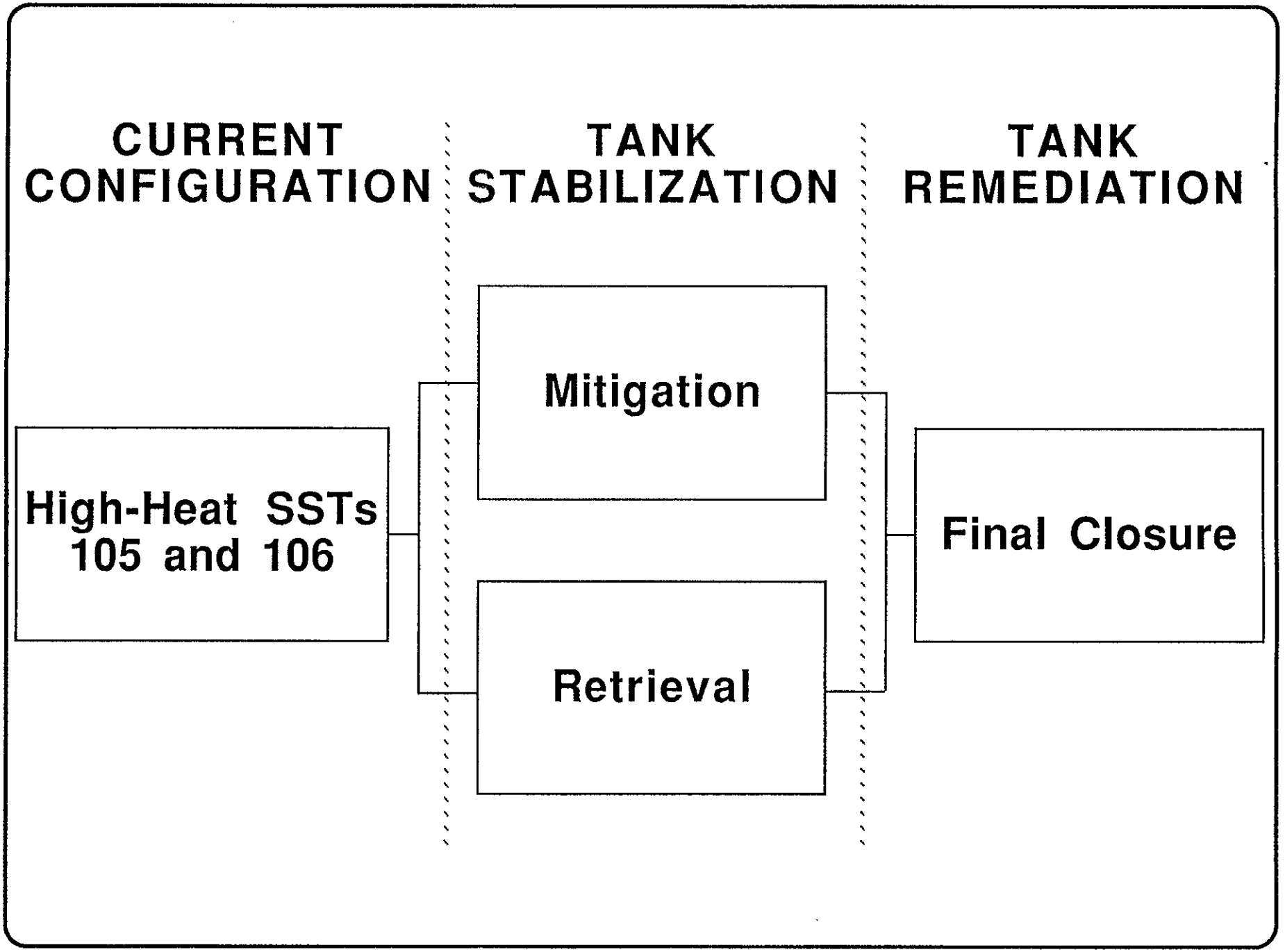
Hanford Site
Hanford High-Heat Tanks
Stabilization Program

presented to

SST Unit Managers' Meeting

by

G. R. (George) Wilson
Westinghouse Hanford Company
November 21, 1991


CURRENT CONFIGURATION
TANK STABILIZATION
TANK REMEDIATION
High-Heat SSTs 105 and 106
Mitigation
Retrieval
Final Closure

HIGH-HEAT TANK STABILIZATION PROGRAM

Near-Term Objectives - Mitigation

- Implement a process test to stabilize 105-C

  - Develop cooling water model
  - Determine if core sample needed
  - Evaluate retrievability of "dry sludge"
  - Install thermocouple trees
  - Stop water additions and monitor temperature

- Implement a process test for 106-C (planning only for FY 1992)

  - Design test based on cooling water model and lessons learned from 105-C test
  - Install thermocouple trees and water metering system
  - Develop and implement a liquid level monitoring detection system for use in the sludge
  - Stop water addition and monitor temperature to arrive at a minimum cooling liquid level
  - Meter water into tank to maintain level and temperature

HIGH-HEAT TANK STABILIZATION PROGRAM

Based on Cooling Water Model and Process Tests

- Determine drainable liquid configuration of the tank and corresponding corrective action options

  Drainable = Min Liquid Cooling Level - Holdup

- If drainable << 0 tank is effectively stabilized

  - Implement temperature and water monitoring and control until tank closure

- If drainable "near zero"

  - Refine data (e.g., holdup/temperature limits)
  - Implement mini-mitigations (e.g., chilled air cooling)

- If drainable >> 0

  - Barriers or retrieval

HIGH-HEAT TANK STABILIZATION PROGRAM

Program Status

- Program plan in final WHC review
- Cooling water model to be completed this fiscal year
- Mitigation studies to be completed in January 1992
- Mitigation/retrieval/final closure interfaces being established and worked

Handout 5

SST Unit Managers Meeting

Tank 241-C-106 Retrieval

J. M. Henderson

November 1991

Tank 241-C-106 Retrieval
Introduction

* Tank 241-C-106 will require active cooling until the year 2045, unless waste is retrieved from the tank.

* Nine of eleven high heat SST's are declared leakers. Only C-105 and C-106 remain "sound".

* TPA milestone for interim stabilization and isolation (M-05-08) by 9/96.

* Retrieval of the high-heat waste from the tank eliminates the hazard.

* Retrieval is one option for C-106 stabilization

Tank 241-C-106 Retrieval
Introduction
(con't)

* Material from C-106 has been proposed as feed for HWVP.

* Draft Engineering study prepared.

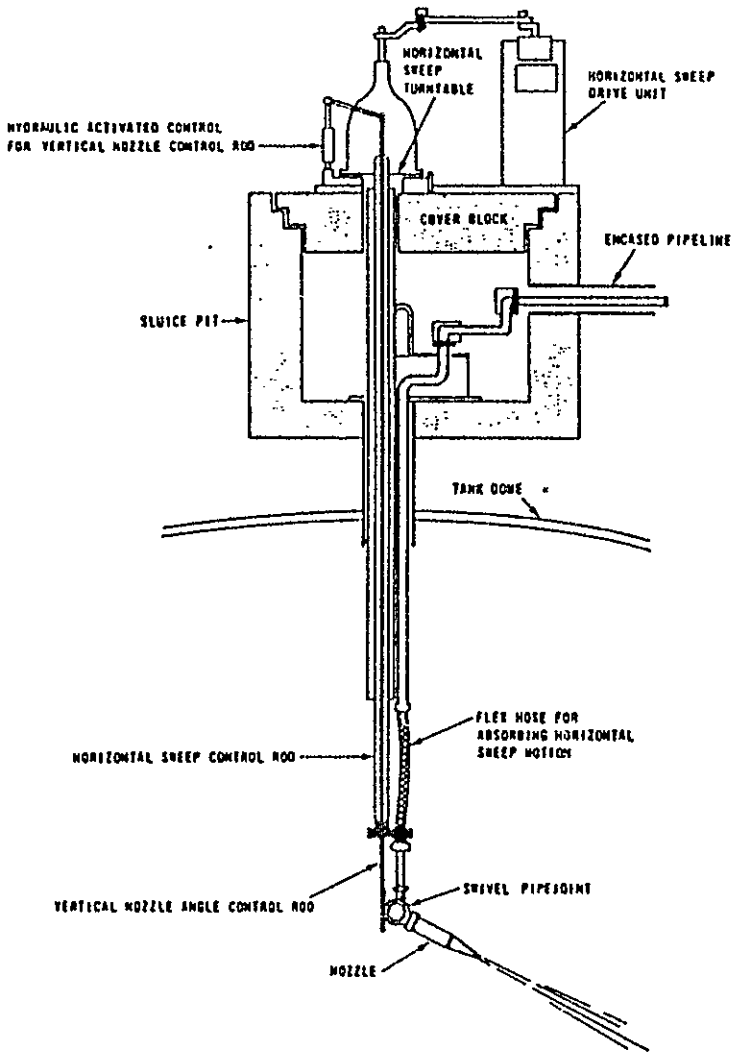
  * In management review; not issued or cleared.

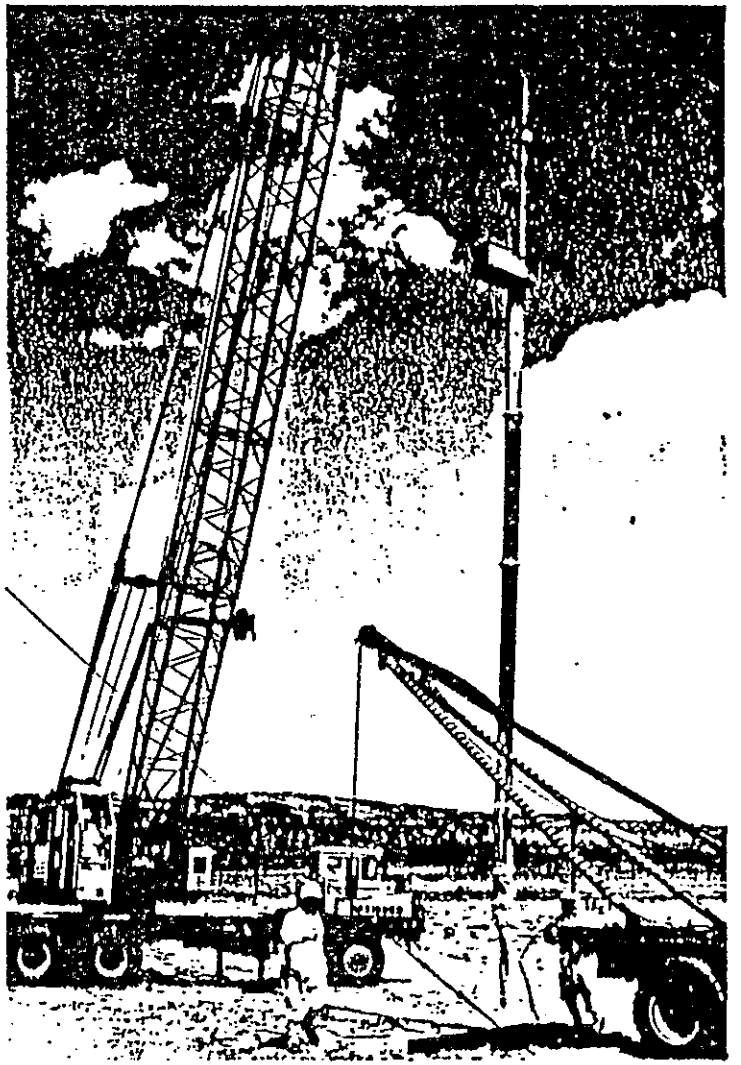
  * Draft schedule shows waste retrieval in FY99.

  * Retrieval system procurement concept: Vendor development of concept, prototype, and production units(s) based on performance specification.

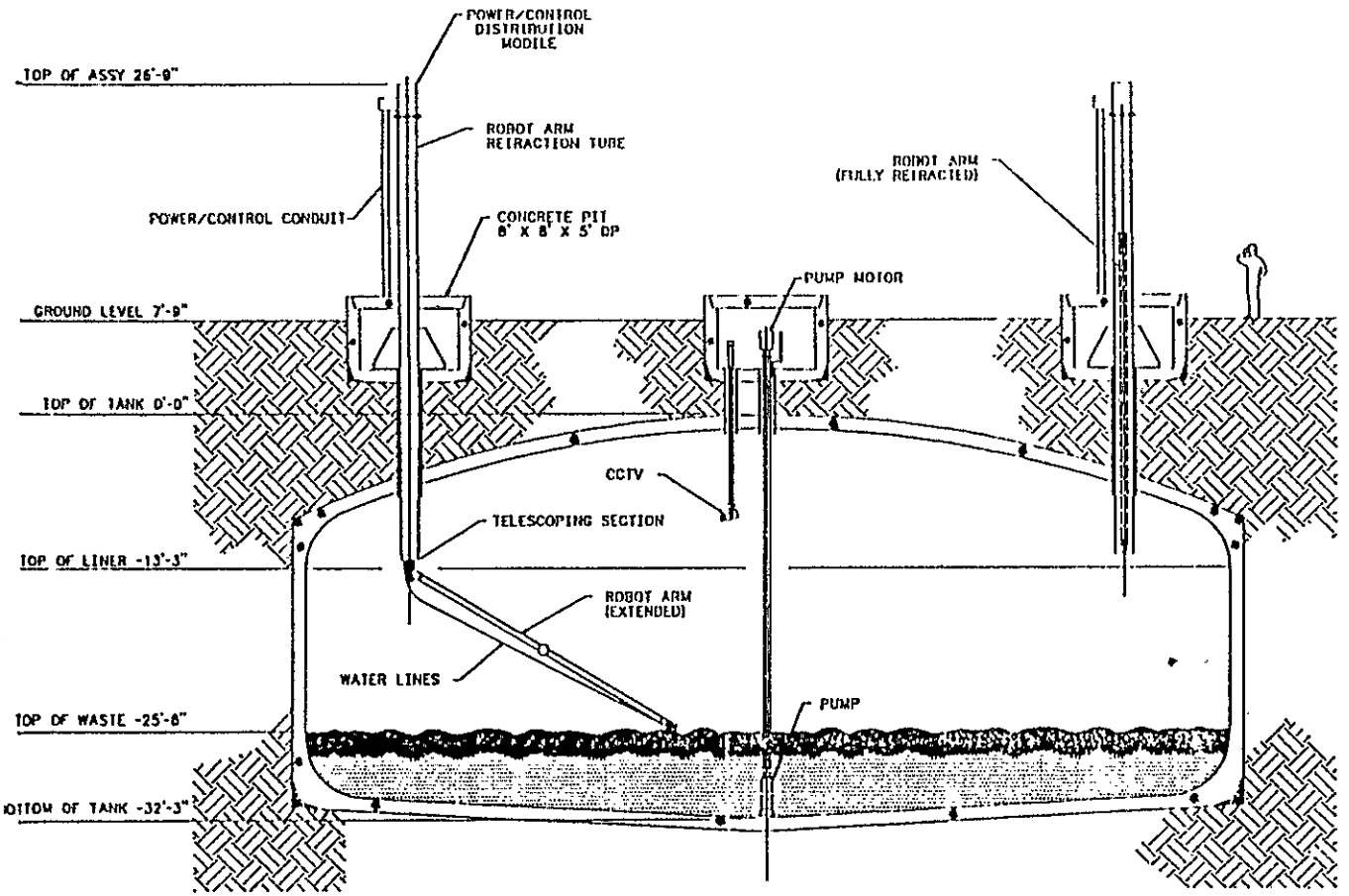
Tank 241-C-106 Retrieval Options

* Past Practice (Unlimited Sluicing)
* Limited Sluicing
* Confined Sluicing
* Dredging
* DST Mixer Pump - Slurry Transfer
* Study recommendations : Confined Sluicing

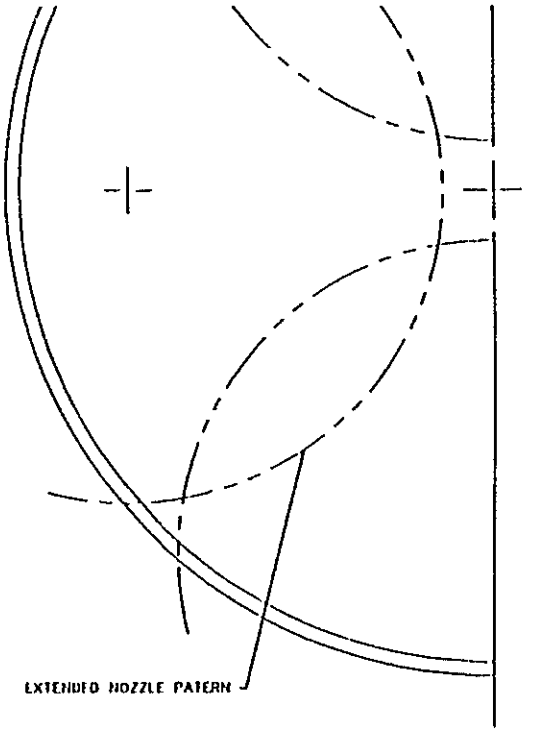




Past Practice Sluicing System

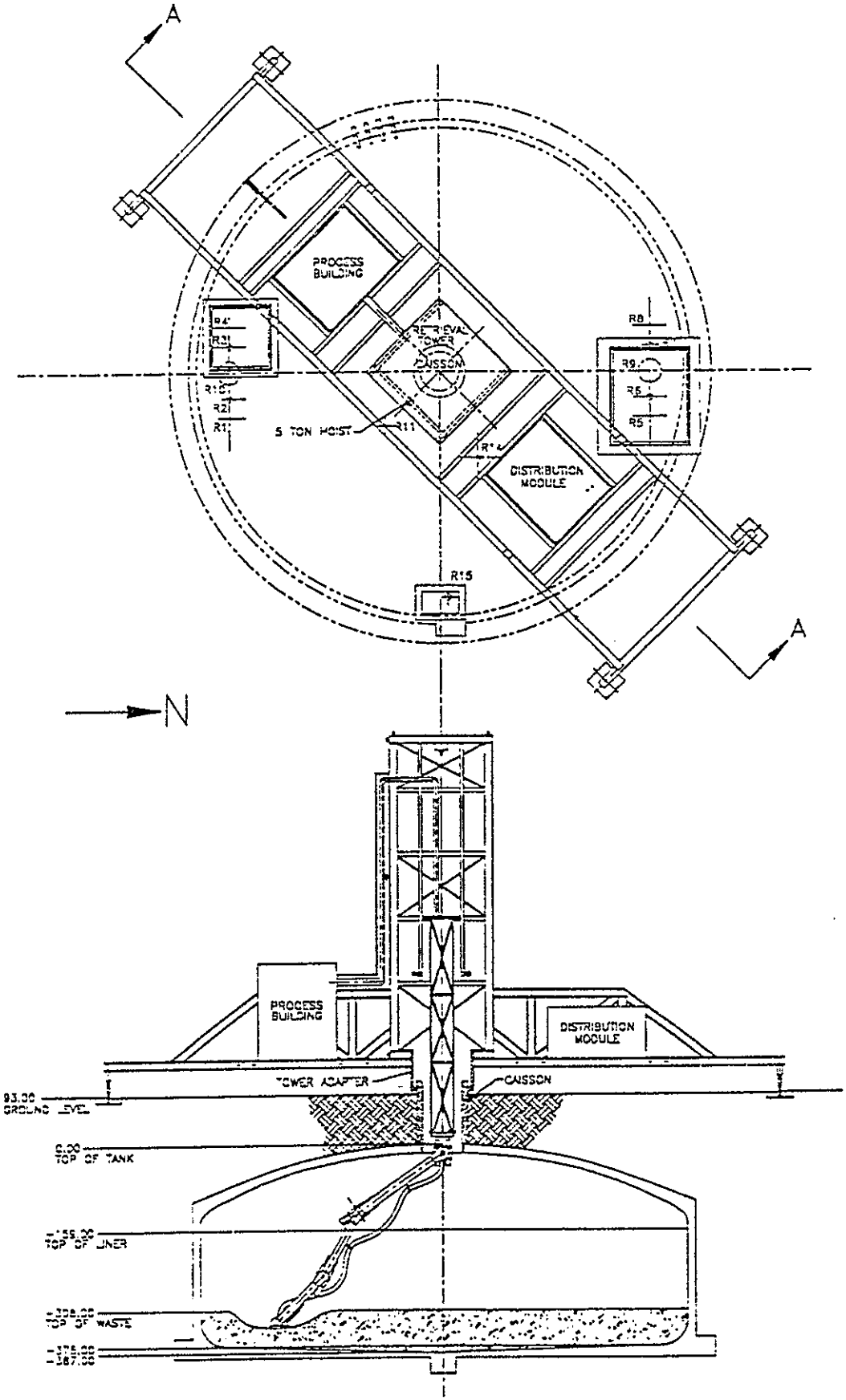


TK-241-C-106



PARTIAL PLAN

LIMITED SLUICING CONCEPT TK-241-C-106



SECTION A–A

C–106 CONFINED SLUICING SYSTEM

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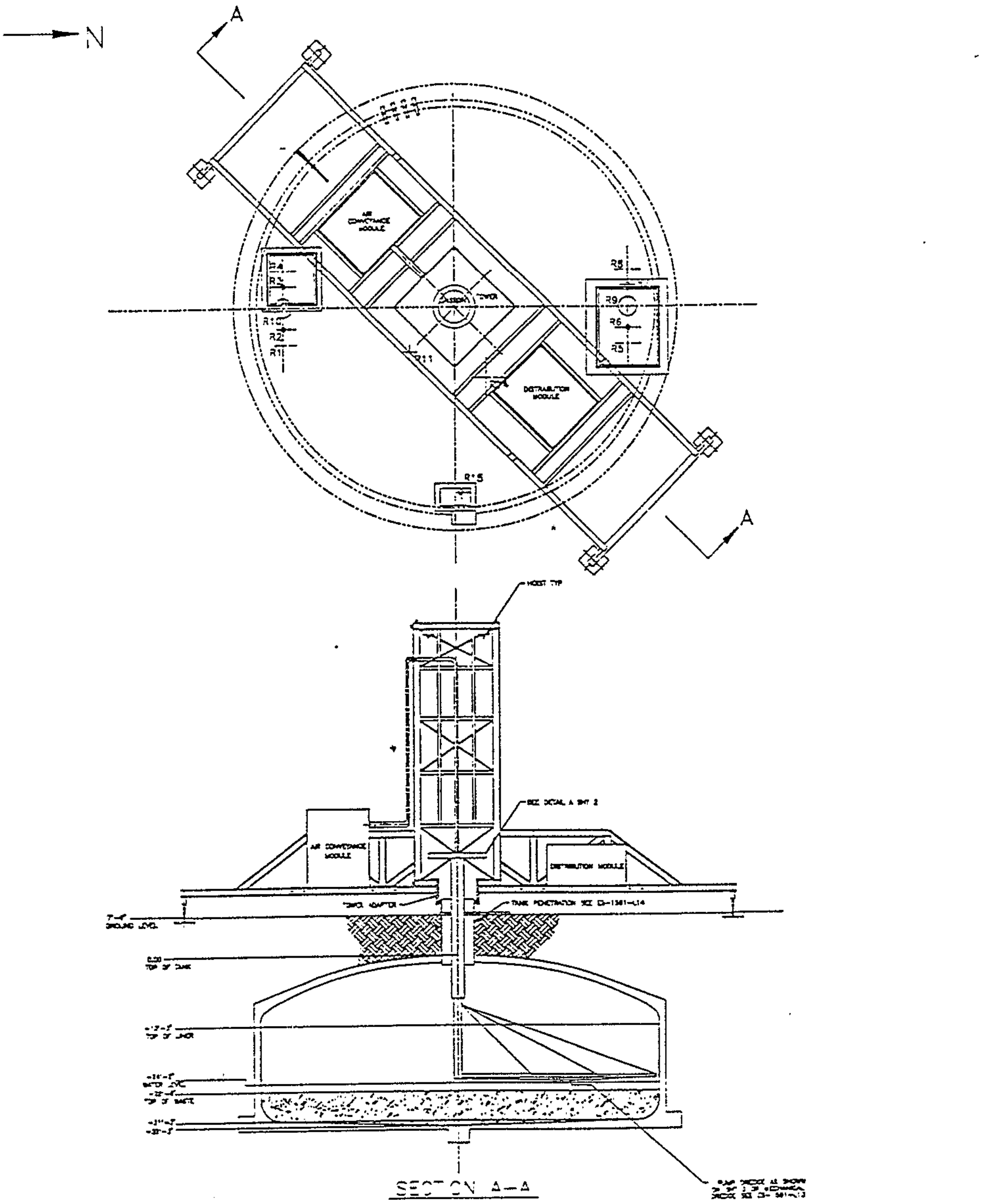
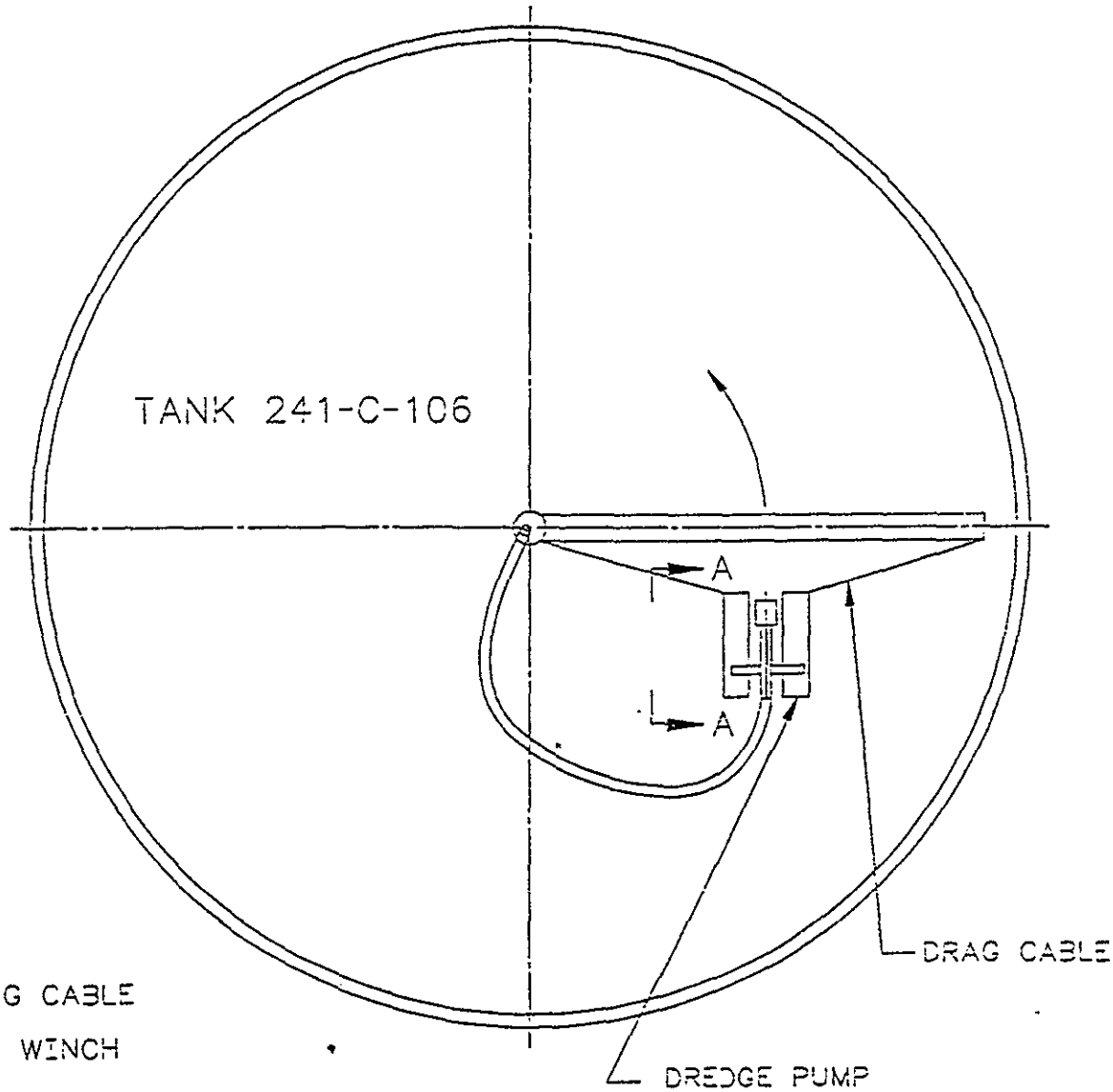
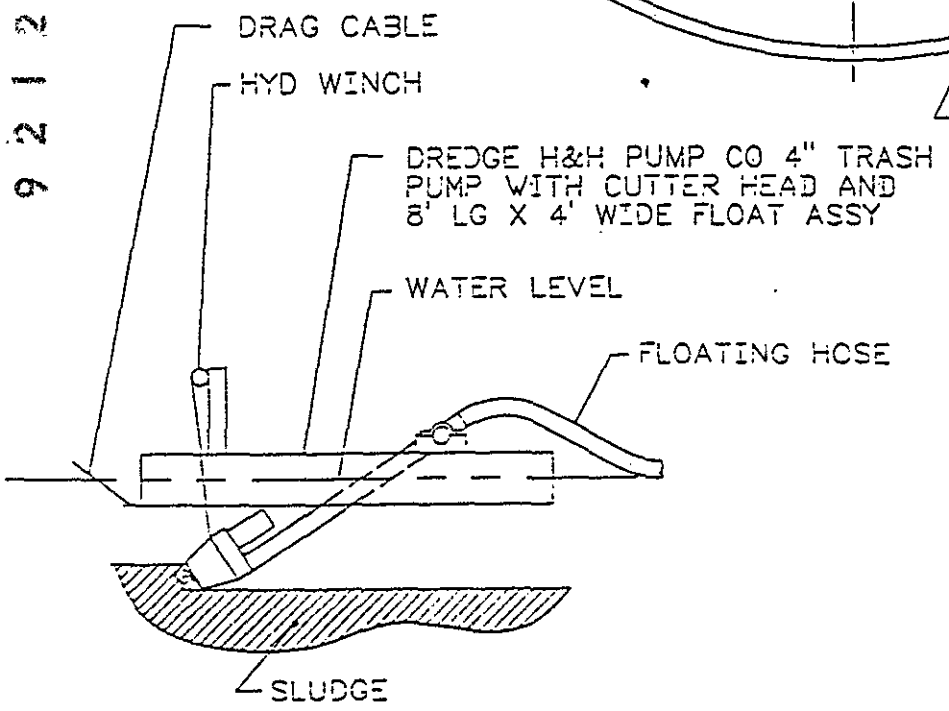


SECTION A-A

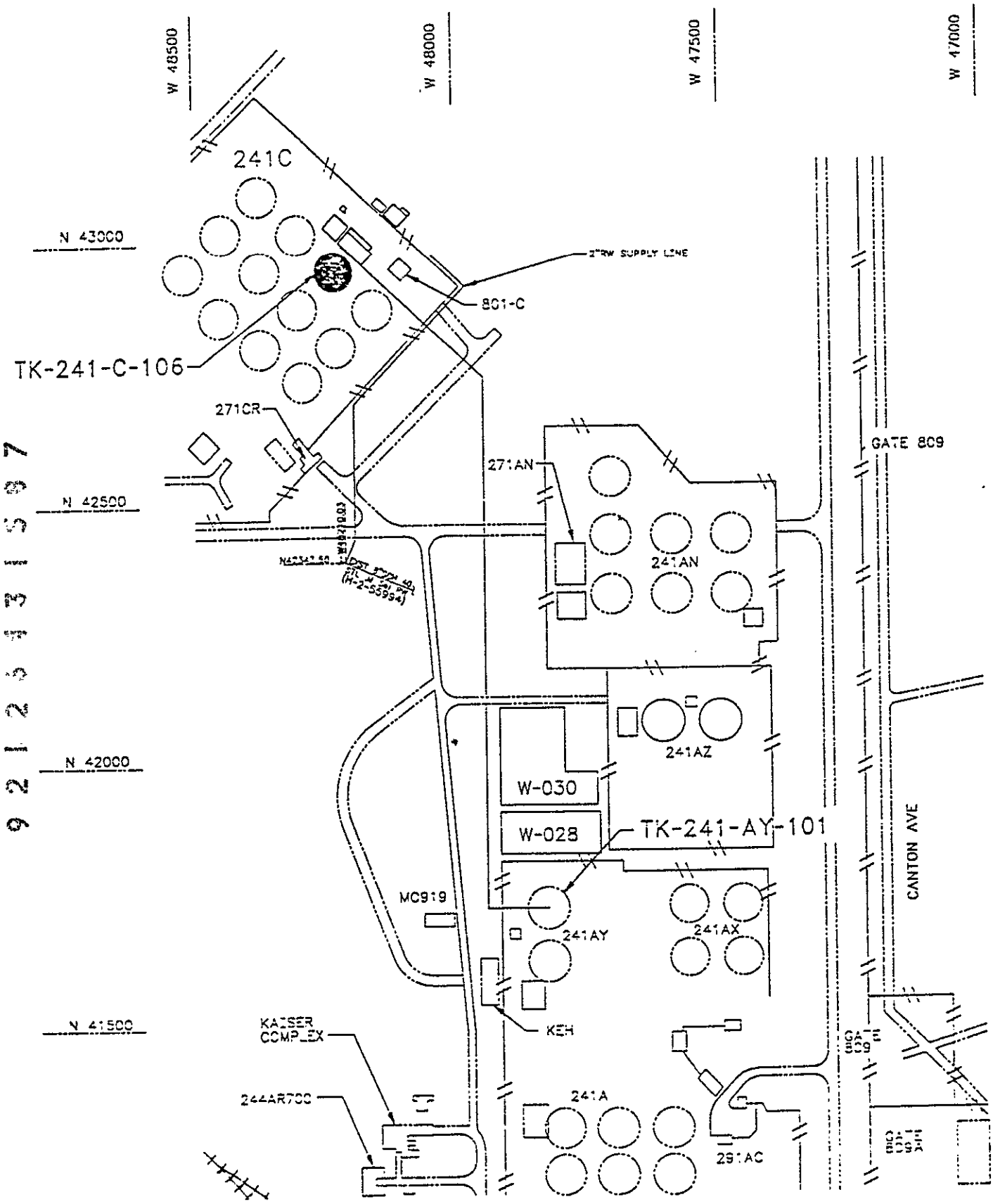
DRAG ARM ELEVATION TK-241-C-106





SECTION A-A

DRAG ARM PLAN



PROJECT SITE

Tank 241-C-106 Retrieval
Criteria / Assumptions / Limitations / Impacts

* Maintain tank integrity (prevent catastrophic tank failure).

* Minimize potential for tank leaks.

* Retrieve sufficient waste to place the tank in a safe, interim storage configuration.

* Comply with all applicable laws, regulations, and DOE Orders.

* Allow follow-on waste disposal and site closure actions, consistent with existing plans or options.

Tank 241-C-106 Retrieval
Status / Next Steps

* Engineering study undergoing management review.

* Integration planning with TD Program underway.

* Project funding inadequate to proceed with conceptual design until FY-1993.

Handout 6

TRI-PARTY AGREEMENT

SST UNIT MANAGERS MEETING

J. M. HENDERSON

NOVEMBER, 1991

Tri-Party Agreement
SST Unit Managers Meeting
November, 1991

M-06, M-07, M-08 Responsibility Assignments within WHC

- M-06 : Office of Technology Integration, working within the TD Program has responsibility for development of the SST waste retrieval technology.

- M-07 and M-08 : The Defense Waste Remediation Division, working within the WM Program has responsibility for initiation of full-scale demonstration of waste retrieval technology and full-scale demonstration of tank farm closure.

M-06, M-07, M-08 Responsibility Assignments within WHC (con't)

- The requirements for development actions under the M-06 milestone are being reviewed by the Defense Waste Remediation Division, based on the technology needs to achieve the M-07 and M-08 milestones.

- Interfaces have established between the Defense Waste Remediation Division, the Waste Tank Safety, Operations, and Remediation Division, and the Engineering Applications Division.

Single Shell Tank Retrieval Technology

Milestone: M-06-00

June Hennig, Unit Manager
Ken Bracken, Division Director

Technology Development Program

November 20, 1991

National Technology Applicable to Tank Waste Retrieval

- Characterization & Sensor Technology IP (Ames Laboratory)
  - New Microsensors
  - Ultrasensitive Measurement
  - Multi-component Sensors
  - Chemical Sensors
  - Sampling/Sampling Strategies
  - Remote Sensing
  - Real Time Monitor for Organics

Retrieval Technology Evaluation

- Team formed to review progress
- Review conducted by independent parties (Sandia, LLNL, Support Contractor)
- End product - confirmation that all reasonable retrieval options have been explored, or new options identified for consideration

National Technology Applicable to Tank Waste Retrieval

- Retrieval Technology - (UST Robotics IP-West)
  - Integrated Control Systems - Sandia
  - Long Arm Dynamics - ORNL
  - Real Time Modeling - PNL
  - Real Time Control System Feedback - Sandia
  - Sensors Applicable to Control - Sandia
  - Arm Design, Materials of Construction - Georgia Tech

Characterization Technology - UST-ID

- Ferrocyanide Detection Using Raman Scattering Spectroscopy
  - Material Speciation in problem environments, has been demonstrated by Florida State
  - Contract being placed with Florida State, now negotiating terms and conditions
- In Situ Characterization Cone Penetrometer Demonstration
  - Measures physical properties of tank waste and feeds into robotic systems end effector and actuator design
  - Cone Penetrometer demonstration completed end of FY-91 on simulated waste
  - Contract with Applied Research Associates
- Surface Characterization/Mapping of Waste Tanks
  - Technology developed by Jet Propulsion Lab for reconnaisance and characterization of materials in space
  - Contract with JPL almost in place

National Technology Applicable to Tank Waste Retrieval

- Retrieval Technology - UST-ID

  - Prepared Plan for integration of WHC, LLNL & SNL activities
  - Design of retrieval equipment in progress
  - Install & demonstrate dislodging and conveyance equipment on test bed in September 1992
  - SNL transfer of control technology for test bed by March 1992

M-06 Milestone Definition Status

- Establish top level time phased tasks to support milestones M-07 & M-08 - 12/3

- Define current top level scope and schedule for retrieval technology development and demonstration - 12/3

- Meld 1 and 2 above into an integrated top level schedule - 12/13

- Initiate discussions with State Department of Ecology on milestone definition-week of January 20, 1992

Cost/Schedule Status

- TTP-9709 (Robotics)

  - FY-91 Authorized - $1,267K
  - FY-91 Costs - $833K
  - FY-92 Draft Guidance - $1,890
  - Milestone: Draft Robotic's Retrieval System Performance Specification - 9/92

- TTP-9710 (DTE, DTD) Systems, Dislodging & Conveyance

  - FY-91 Authorized - $1,098K
  - FY-91 Costs - $1,006K
  - FY-92 Draft Guidance - $1,050 (Combined)
  - Milestone: Test Plan for Dislodging & Conveyance Technologies - 6/92

- Tasks At Other Field Offices Also Support This Milestone

National Technology Applicable to Task Waste Retrieval

- Characterization Technology - Ames Laboratory
- Control System, Sensors, Modeling, Real Time Feedback - Sandia Laboratory
- Long Arm Dynamics - Oak Ridge National Laboratory
- Arm Design, Materials of Construction - Georgia Technical

TRI-PARTY AGREEMENT

SST UNIT MANAGERS MEETING

J. M. HENDERSON

NOVEMBER, 1991

Tri-Party Agreement
SST Unit Managers Meeting
November, 1991

Cost / Schedule Status : M-07 and M-08

- Initial criteria and plans for the M-07 milestone are being developed.

- WHC is evaluating the benefits of combining the 241-C-106 retrieval actions with the M-07 work.

  - Most of the retrieval functions will be performed on the 241-C-106 waste retrieval project.

    - Retrieval system deployment
    - Tank mapping
    - In-tank viewing

Cost / Schedule Status : M-07 and M-08 (con't)

- Waste conveyance
- Sludge mobilization

- Integrated technology and retrieval programs will provide the required demonstrations necessary to move forward into the M-08 tank farm closure demonstration

- Major program consolidation and cost savings can result from combining the C-106 retrieval actions with the M-07 retrieval work.

- An updated list of technology requirements for the M-07 and M-08 milestones will be provided to the TD Program for the M-06 planning and implementation.

SINGLE-SHELL TANK CHARACTERIZATION

MILESTONE M-10-00

John Clark - USDOE/RL
Al Noonan - WHC

Single-Shell Tanks Unit Managers Meeting

November 21, 1991
Richland, Washington

SINGLE-SHELL TANK CHARACTERIZATION

MILESTONE: M-10-00

TOPICS

Monthly Accomplishments

Near-Term TPA Milestones

Near-Term Core Sampling Schedule

Modified Analysis Plan for FeCN SSTs

NPH Clean-Up Methodology (PNL)

Issues and Concerns

Cost and Schedule Status

M-10-13 Change Request

MONTHLY ACCOMPLISHMENTS

- Submitted Rev. 3 of the SST Characterization Plan to WDOE [October 18, 1991]

- Completed Retrieval of 2 Cores from Tank 241-B-111 (M-10-06) [October 04, 1991]

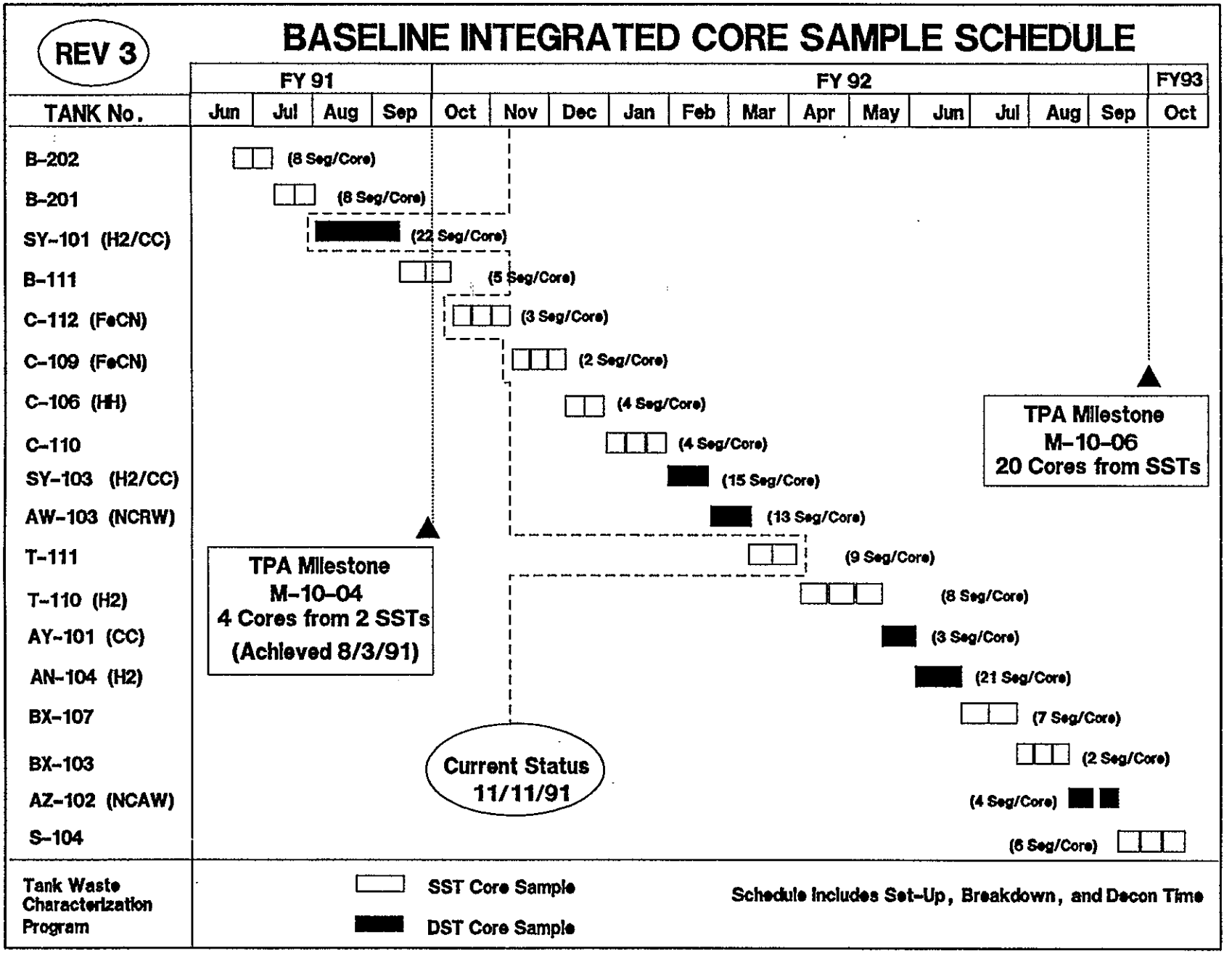
- Completed Retrieval of 2 Cores from Tank 241-T-111 (M-10-06) [October 25, 1991]

- Initiated Purge Gas and Tandem Sampling Design Programs (M-10-13)

- Completed Concept Tests for NPH Elimination and the Universal Sampler (M-10-13)

NEAR-TERM TPA MILESTONES

NUMBER	MILESTONE	DUE DATE
M-10-13-T1	Completion of improved organic clean-up analytical method	January 1992
M-10-05-T1	Issue draft Integrated Plan	January 1992
M-10-05	Issue "Integrated Plan - Sampling and Analysis of Hanford Site Wastes Measuring Greater Than 10 mREM per Hour"	March 1992
M-10-13-T2	Complete R&D and Installation of Both the Hard Saltcake Sampler and the Improved Hydrostatic Balance System	June 1992
M-10-06	Obtain 20 core samples from SSTs	September 1992
M-10-13	Restore rotary mode sampling capability at the Hanford Site	September 1992


REV 3
BASELINE INTEGRATED CORE SAMPLE SCHEDULE
FY 91
FY 92
FY93
TANK No.
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
B-202
B-201
SY-101 (H2/CC)
B-111
C-112 (FeCN)
C-109 (FeCN)
C-106 (HH)
C-110
SY-103 (H2/CC)
AW-103 (NCRW)
T-111
T-110 (H2)
AY-101 (CC)
AN-104 (H2)
BX-107
BX-103
AZ-102 (NCAW)
S-104
(8 Seg/Core)
(8 Seg/Core)
(22 Seg/Core)
(5 Seg/Core)
(3 Seg/Core)
(2 Seg/Core)
(4 Seg/Core)
(4 Seg/Core)
(15 Seg/Core)
(13 Seg/Core)
(9 Seg/Core)
(8 Seg/Core)
(3 Seg/Core)
(21 Seg/Core)
(7 Seg/Core)
(2 Seg/Core)
(4 Seg/Core)
(6 Seg/Core)
TPA Milestone
M-10-06
20 Cores from SSTs
TPA Milestone
M-10-04
4 Cores from 2 SSTs
(Achieved 8/3/91)
Current Status
11/11/91
Tank Waste
Characterization
Program
SST Core Sample
DST Core Sample
Schedule Includes Set-Up, Breakdown, and Decon Time

CURRENT INTEGRATED CORE SAMPLE OPERATIONS SCHEDULE

October 24, 1991	FY 92				
Tank No.	Nov	Dec	Jan	Feb	Mar
T-111	(9 Seg/Core)				
SY-101 (H2/CC)		(22 Seg/Core)			
C-112 (FeCN)			(2 Seg/Core)		
C-109 (FeCN)				(2 Seg/Core)	
C-110				(4 Seg/Core)	
Opportunity Tank BX-103		(2 Seg/Core)			

Tank Waste Characterization Program

KEY:
- Non-Public Law 101-510 SST Core Sample
- Public Law 101-510 FeCN SST Core Sample
- Public Law 101-510 Gas Gen. DST Core Sample

MODIFIED TEST PLAN FOR CORE SAMPLE ANALYSIS of FeCN SSTs C-112, C-109, AND T-107.

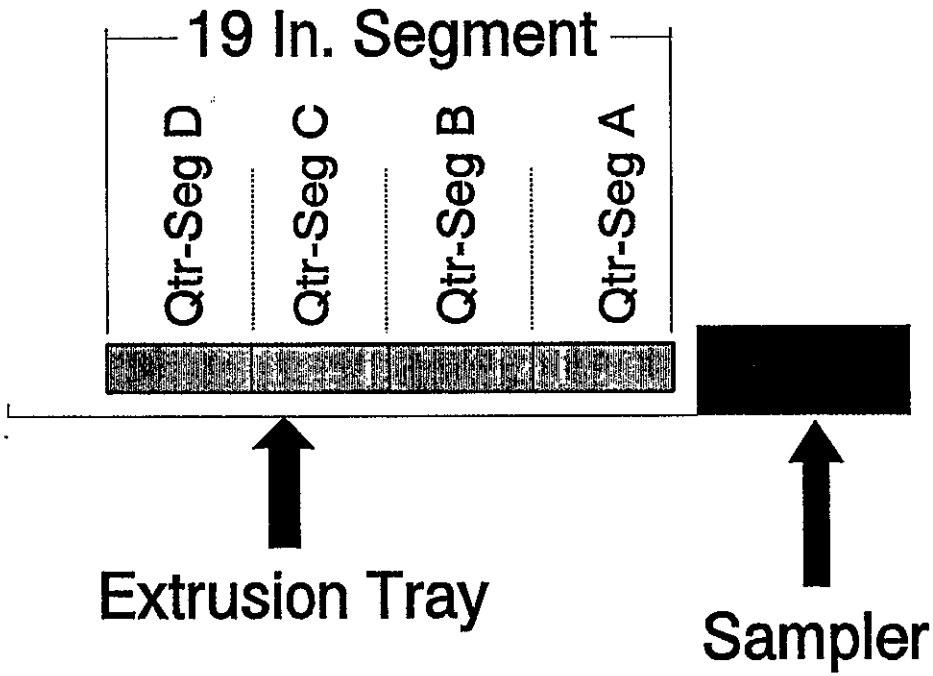
Modifications will only effect the analysis of FeCN SSTs and will NOT alter the analysis scenario for Baseline Case SSTs.

REASONS FOR MODIFICATION:

- **A need to adequately characterize the possible existence of FeCN scavenged waste in layers 3 to 4 inches in thickness.**
- **The addition of a third FeCN SST (T-107) into the FY92 Integrated Core Sample Schedule.**
- **A more extensive and detailed Qtr-Seg level characterization of three cores from SST C-112 is more technically defensible and preferred to a less extensive analysis of three FeCN SSTs.**

OVERVIEW OF FeCN TEST PLAN MODIFICATIONS

- Reduction of the analysis horizon to 4¾ inches.



- Each segment shall be divided into 4¾ inch Qtr-Segs.

OVERVIEW OF FeCN TEST PLAN MODIFICATIONS (Cont)

- Qtr-Seg Level Analyses:

Direct	Fusion Dissolution	Water Leach
TOC DSC TGA CN^- Wt % H_2O	GEA (^{137}Cs) ^{90}Sr ICP (Metals)	IC (Anions) CN^-

- One core composite shall be built and analyzed in accordance to the baseline case core composite scenario detailed in the WCP.

- Qtr-Seg level samples shall be archived from SSTs C-109 and T-107 to be analyzed at a later date in necessary.

ISSUES AND CONCERNS

ISSUE/CONCERN	CORRECTIVE ACTION
Potential lack of laboratory capacity to support multiple programmatic needs has been identified during preparation of the draft Integrated Sampling Plan (M-10-05). This may impact TPA milestone M-10-06 and/or subsequent interim milestones. This issue is currently being pursued by Westinghouse.	o Renegotiate interim milestones in response to the Hanford Site Sampling and Analysis Plan (M-10-05) due in March 1992. o The laboratories are focusing on laboratory facility, equipment and facility upgrades.

ISSUES AND CONCERNS

ISSUE/CONCERN	CORRECTIVE ACTION
PNL core sample analysis has been impacted by waste disposal issues.	o PNL continues to pursue permitting the 325-B hot cells as a "Waste Treatment Facility." Final approval request has been submitted to RL.
	o Disposal of Type B mixed hazardous waste accumulation in 325-A hot cell complex is being pursued by PNL and WHC Waste Management.

ISSUES AND CONCERNS

ISSUE/CONCERN	CORRECTIVE ACTION
o At present, FY92 funding may be insufficient to complete all hard saltcake sampler development activities due to underestimation of complexity of work and the additional need to include gas tight sampling capability.	WHC is completing, in parallel, both an in depth review of technical tasks and preparing a detailed integrated schedule to support milestone M-10-13. A critical review of these activities will be presented to DOE-RL the week of December 9 and will provide the technical basis for Change Request.
o DOE (RL & HQ) currently perceive the hard saltcake sampler deployment milestone (M-10-13) in jeopardy due to: - A gas cooling concept that may be fundamentally flawed; - Insufficient progress in identifying a method to monitor drill bit/drill string temperatures when embedded full depth in tank waste.	

ISSUES AND CONCERNS

ISSUE/CONCERN	CORRECTIVE ACTION
Regulator approval to proceed with tank waste core sampling in accordance with the SST Waste Characterization Plan, Rev. 3, may be delayed due to public review.	WDOE presentation on public review process and potential impact to regulator approval to be made at the SST Unit Manager's meeting 11/21/91.
Due to staffing shortfalls revalidation of U-110 data packages is behind schedule.	The Laboratories have identified support staff and have initiated training to support the data package validation activity.

ISSUES AND CONCERNS

ISSUE/CONCERN	CORRECTIVE ACTION
At present FY 92 funding is insufficient to fully fund analysis of projected core samples.	The Laboratories are working to establish analysis priorities and supporting integrated schedules to provide the basis for Change Request.
RL and Ecology approval of safety assessment and NEPA documentation is required to proceed with FeCN tank core sampling Tank 241-C-112.	RL is working to expedite the review and approval.

9 2 1 2 6 4 3 1 6 1 9

TANK WASTE CHARACTERIZATION
FINANCIAL SUMMARY
October 1991
($ in Millions)

	FYTD Budget	FYTD Cost	Spending Variance	FY1992 Annual Budget
WT Safety	$ 623.0	$174.7	$ 448.3	$ 7184.0
M-10-00	$1045.6	$380.9	$ 664.7	$12784.0
TOTAL	$1668.6	$555.6	$1113.0	$19968.0

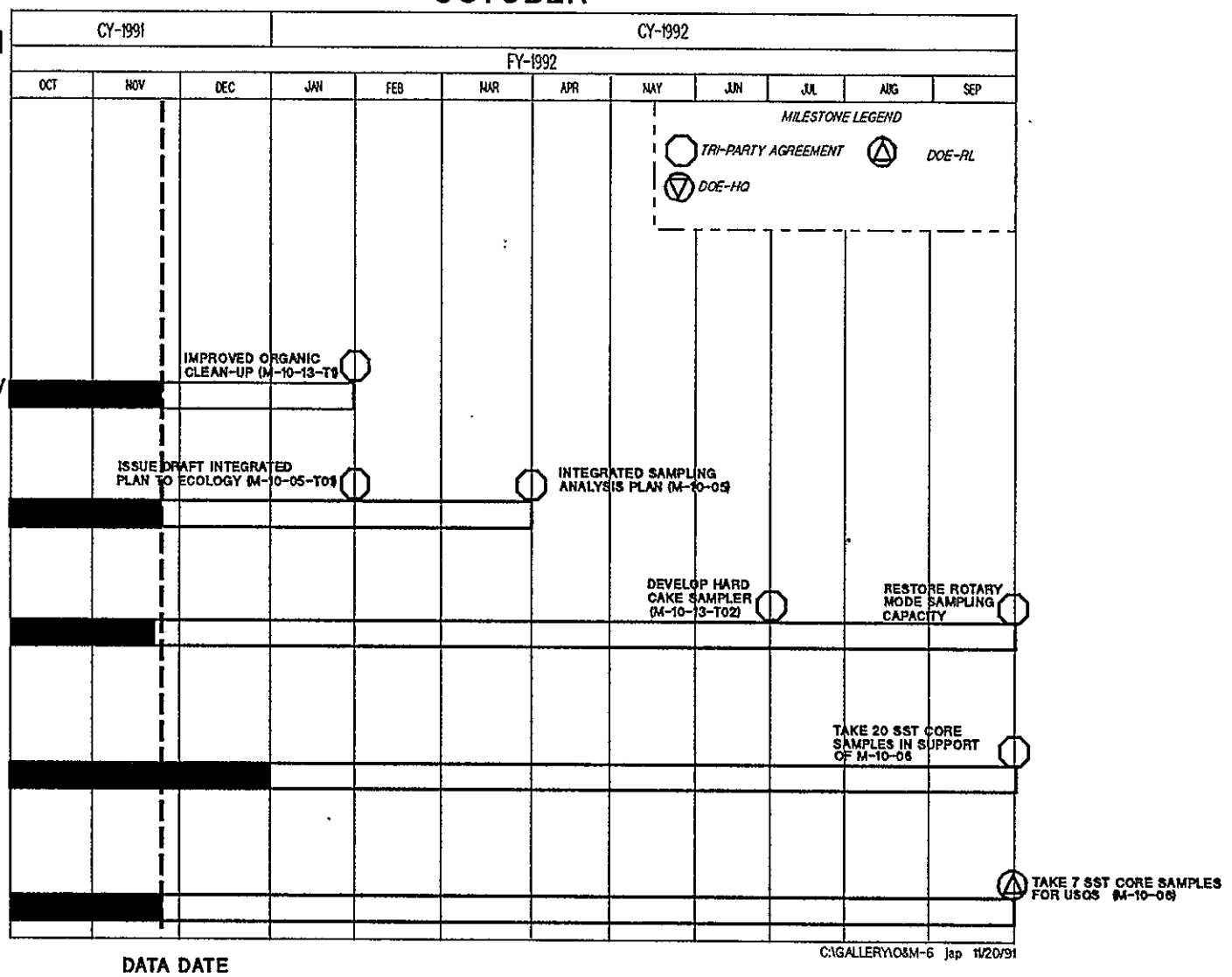
Variance Explanation

The YTD spending variance is due to no assessments billed for 222-S laboratory work, no PNL charges booked and less than budgeted cost for materials and subcontracts. (Primarily related to core sampling equipment.)

TANK WASTE CHARACTERIZATION / TPA MILESTONES

1N4 TANK WASTE CHARACTERIZATION

OCTOBER



DATA DATE

Handout 10

STATUS OF NPH CLEANUP METHODOLOGY DEVELOPMENT

PRESENTED BY:

T.E. JONES

PACIFIC NORTHWEST LABORATORY

NOVEMBER 21, 1991

PNL TECHNICAL CONTRIBUTORS

JIM CAMPBELL, CHEMICAL SCIENCES DEPARTMENT

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ERIC HOPPE, ANALYTICAL CHEMISTRY LABORATORY

APPROACHES TO RESOLVE NPH IMPACT ON ORGANIC ANALYSES

- FIND INERT HYDROSTATIC FLUID
- USE DRILLING TECHNIQUE THAT DOES NOT REQUIRE HYDROSTATIC FLUID
- MODIFY CHEMICAL ANALYSIS METHODOLOGY TO REMOVE NPH FROM SAMPLE

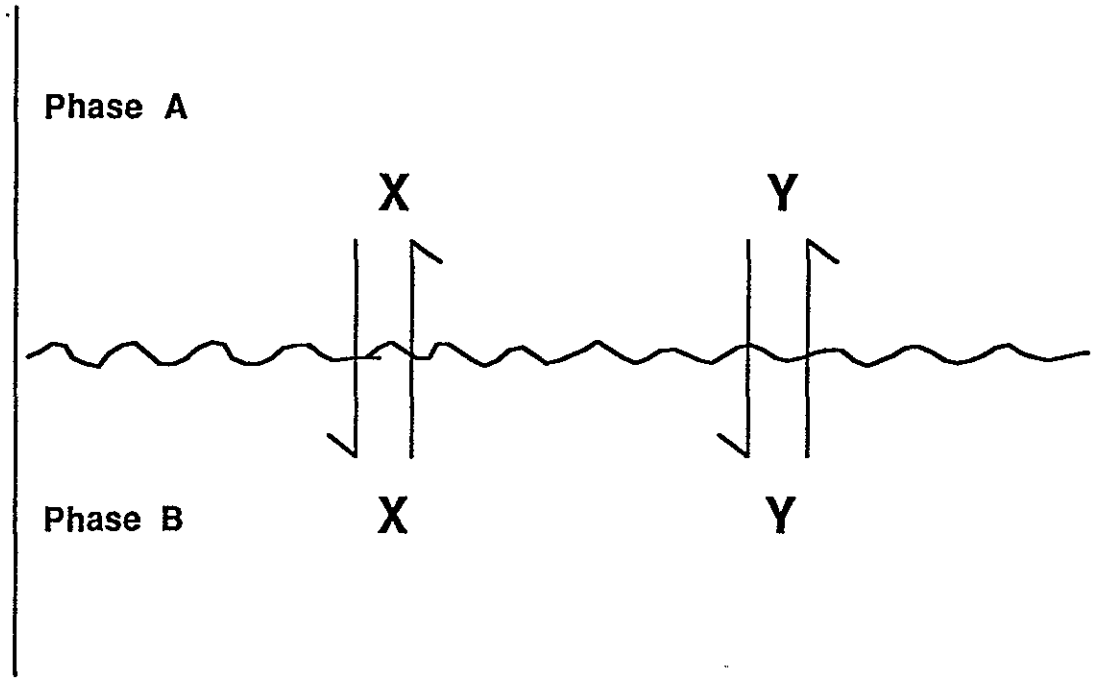
$CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-CH_3$

C-12 N-ALKANE

OR

C-12 NORMAL PARAFFIN HYDROCARBON (NPH)

SEPERATION PROCESS



WHERE

X = NPH
Y = TCL COMPOUNDS

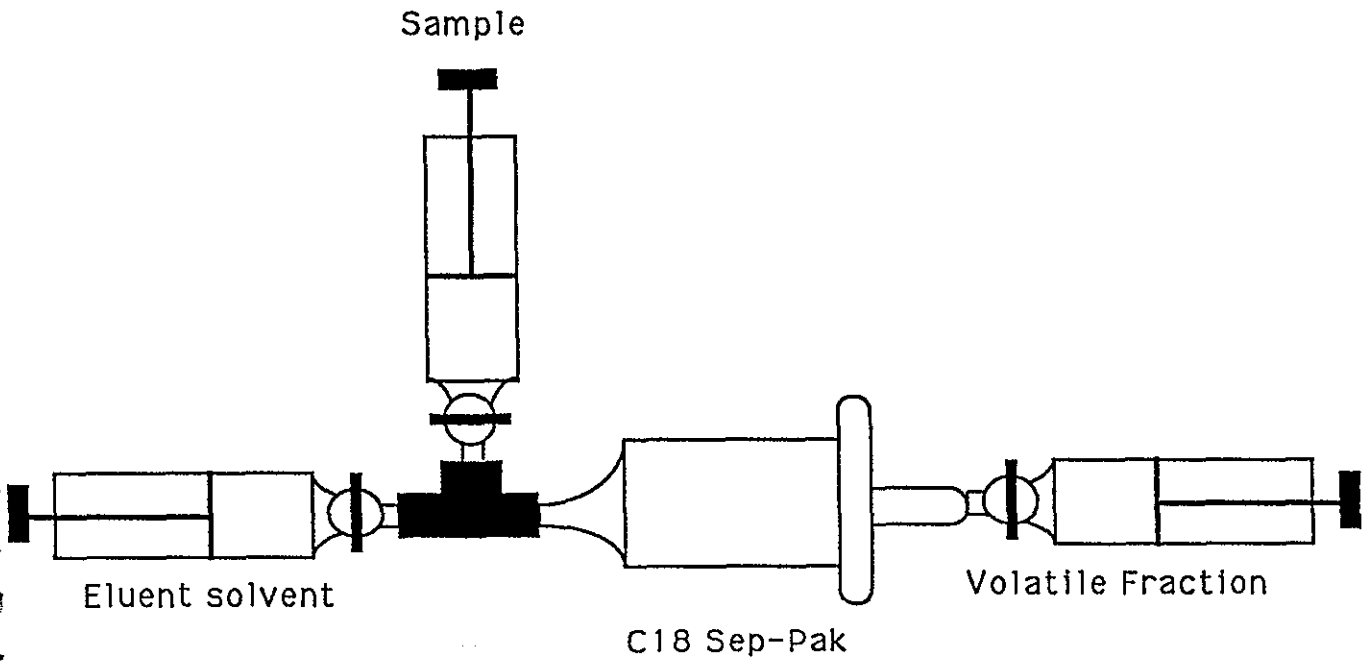
VOLATILE ANALYSIS

NPH CONTAMINATION

- Contamination of system
- Retention times shift
- Loss of response to analytes

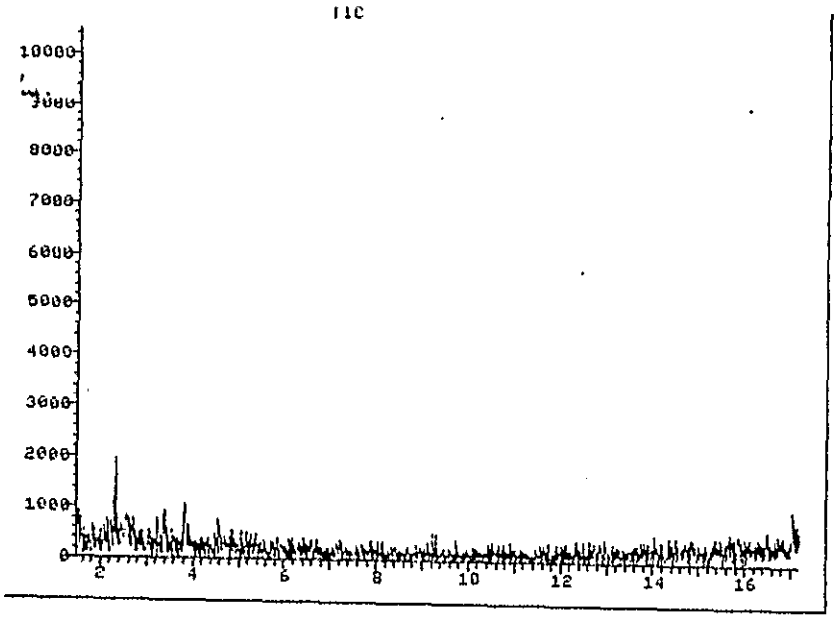
POSSIBLE SOLUTIONS

- Dilution
- Optimize purge and trap system
- Direct capillary injection
- Alternative methods?

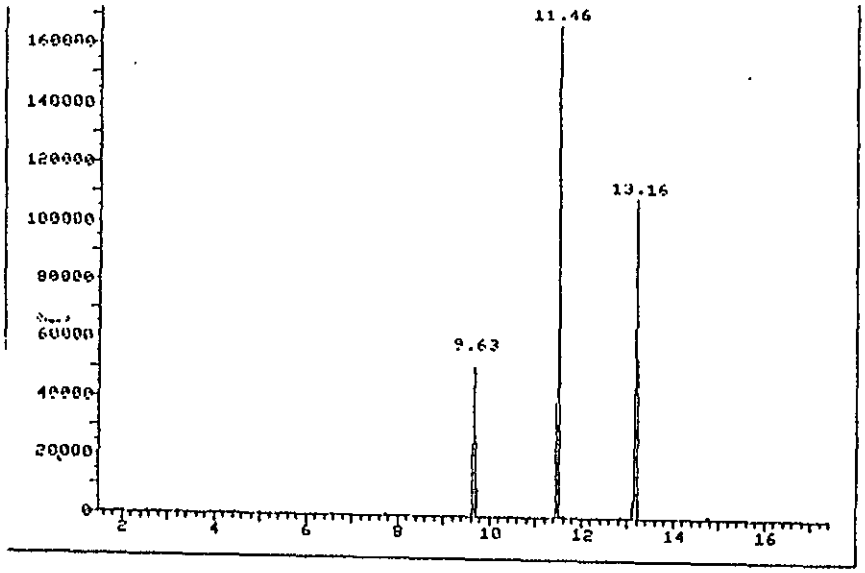


Closed System Solid Phase Extraction

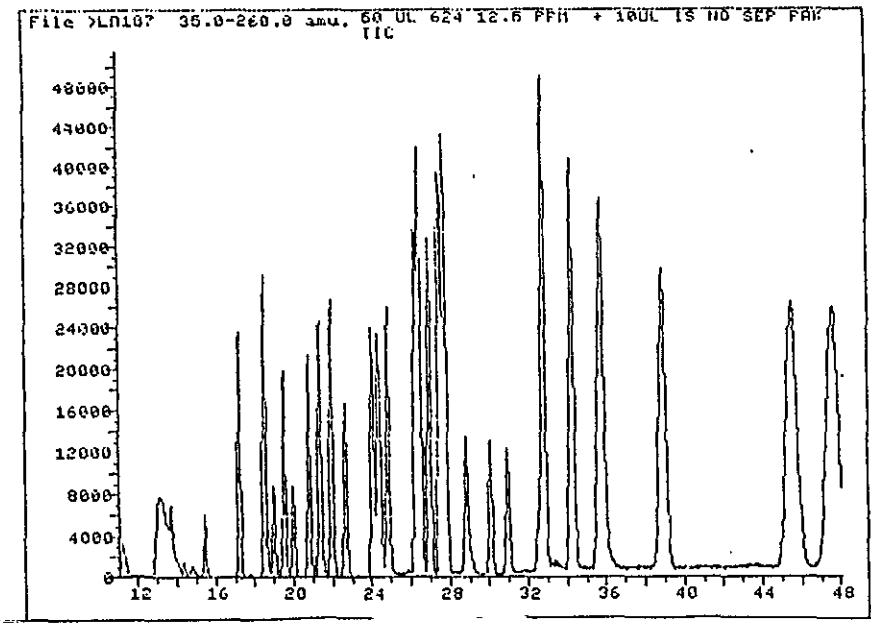
CHROMATOGRAM OF NPH SPIKE AFTER CLEANUP



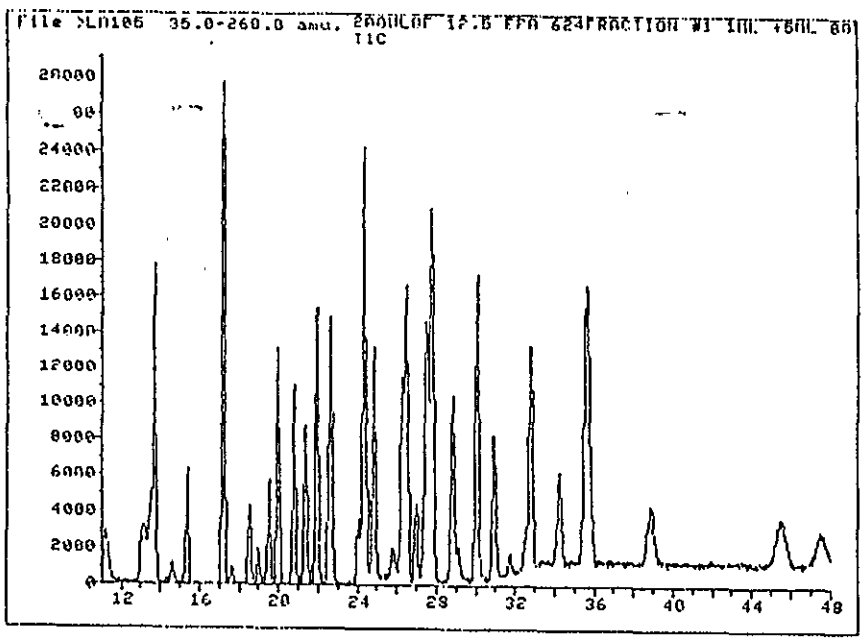
CHROMATOGRAM OF NPH SPIKE ELUDED FROM C-18 CLEANUP COLUMN



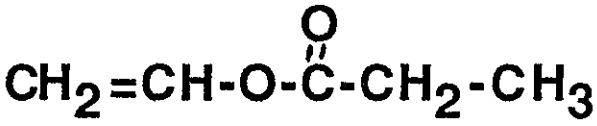
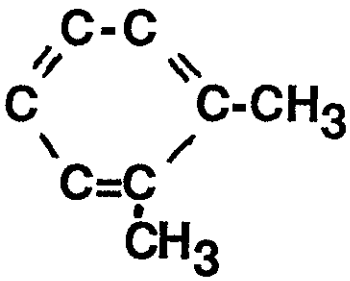
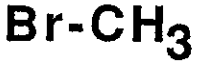
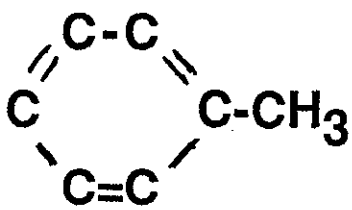
CHROMATOGRAM OF VOLATILE STANDARDS BEFORE CLEANUP



CHROMATOGRAM OF VOLATILE STANDARDS AFTER CLEANUP



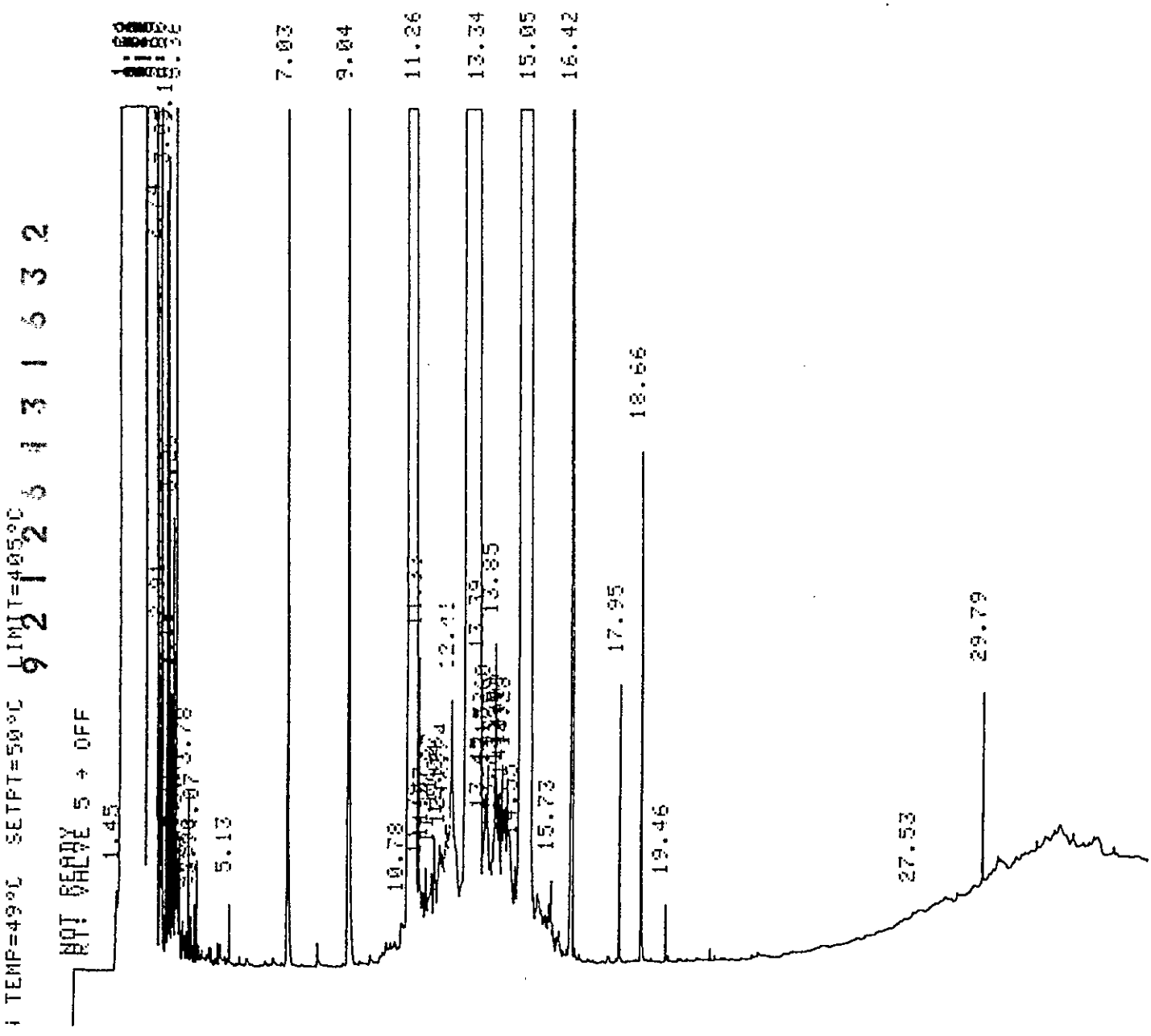
PERCENT RECOVERY FOR VOLATILE STANDARDS

COMPOUNDS	% RECOVERY
 VINYL ACETATE	132
 o-XYLENE	0
 BROMOMETHANE	97
 TOLUENE	18

SEMI-VOLATILE ANALYSIS WITH NPH INTERFERENCE

- Over loading GC column with NPH
- Dilution will not detect trace analytes of interest
- Coelution of NPH with analytes

Figure 1. GC chromatogram of noramal paraffin hydrocarbon (NPH).



Figre 2. GC chromatogram of NPH through silica column eluted with hexane.

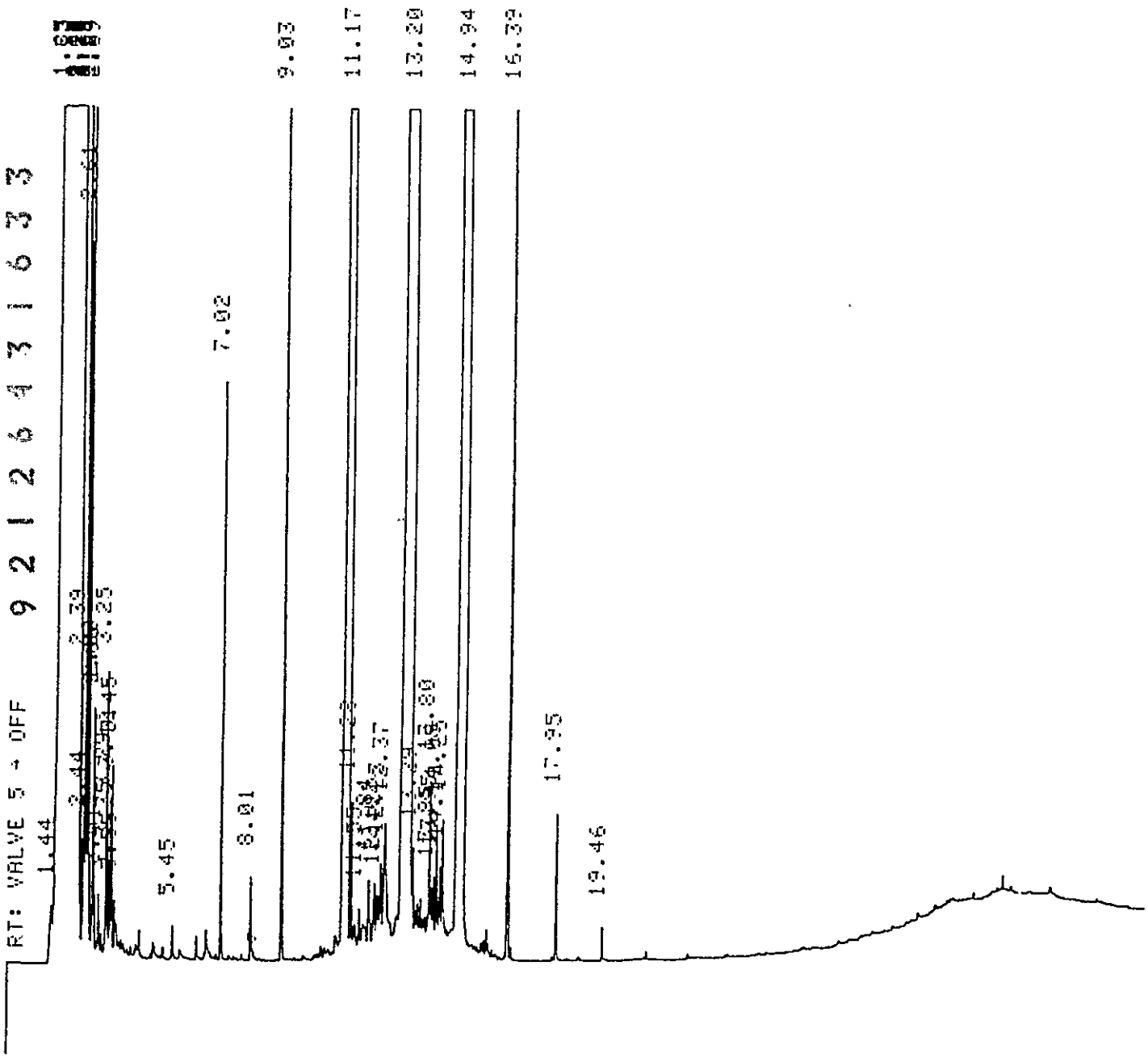
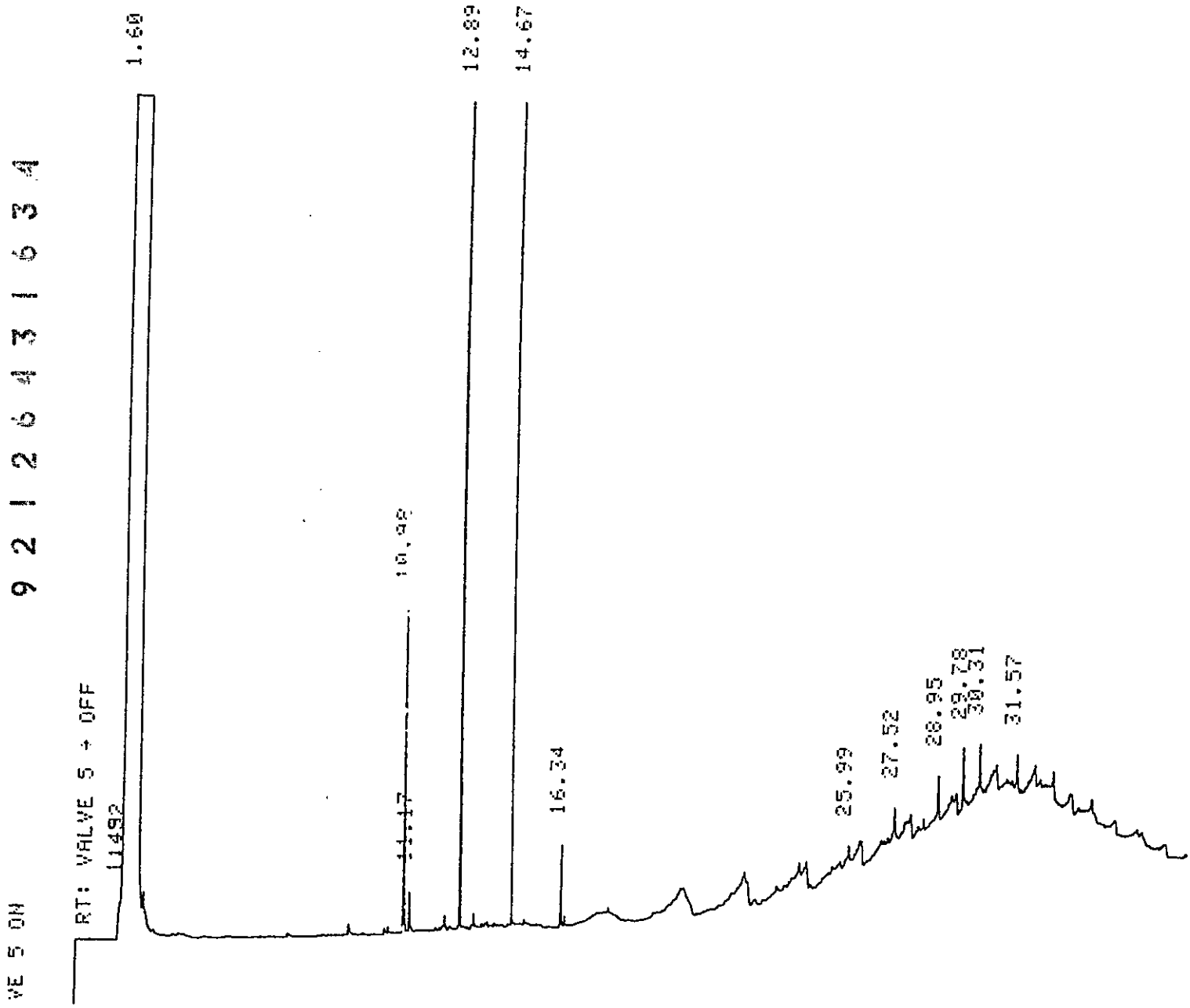


Figure 3. GC chromatogram of methylene chloride:hexane elution of NPH following hexane elution.



NPH

Figure 4. GC chromatogram of a standard mix containing NHP, base neutral mix 2, and the polynuclear aromatic hydrocarbons (PNAs).

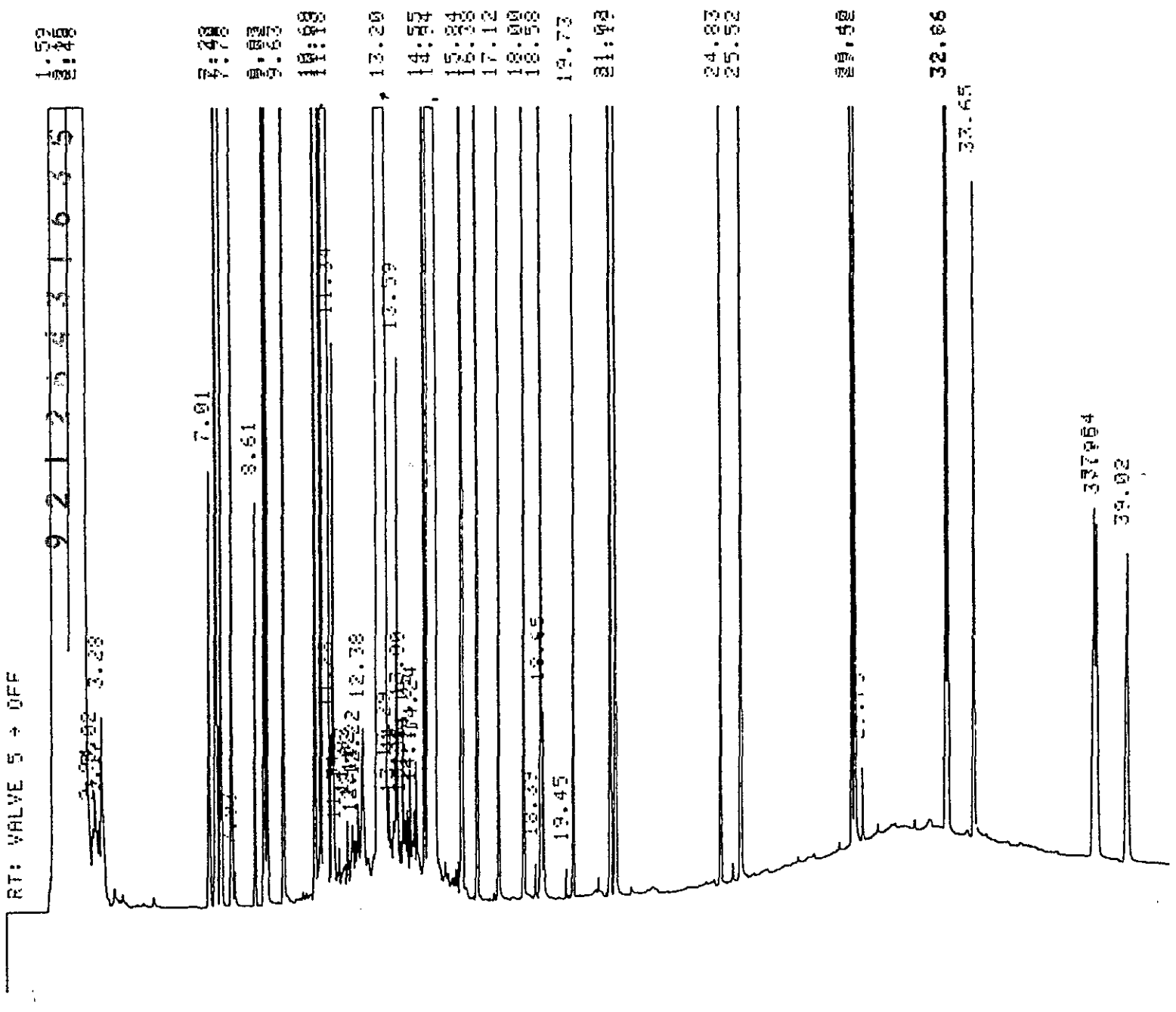


Figure 5. GC chromatogram of the standard mix containing NPH, base neutral mix 2, and PNAs through silica column eluted with hexane.

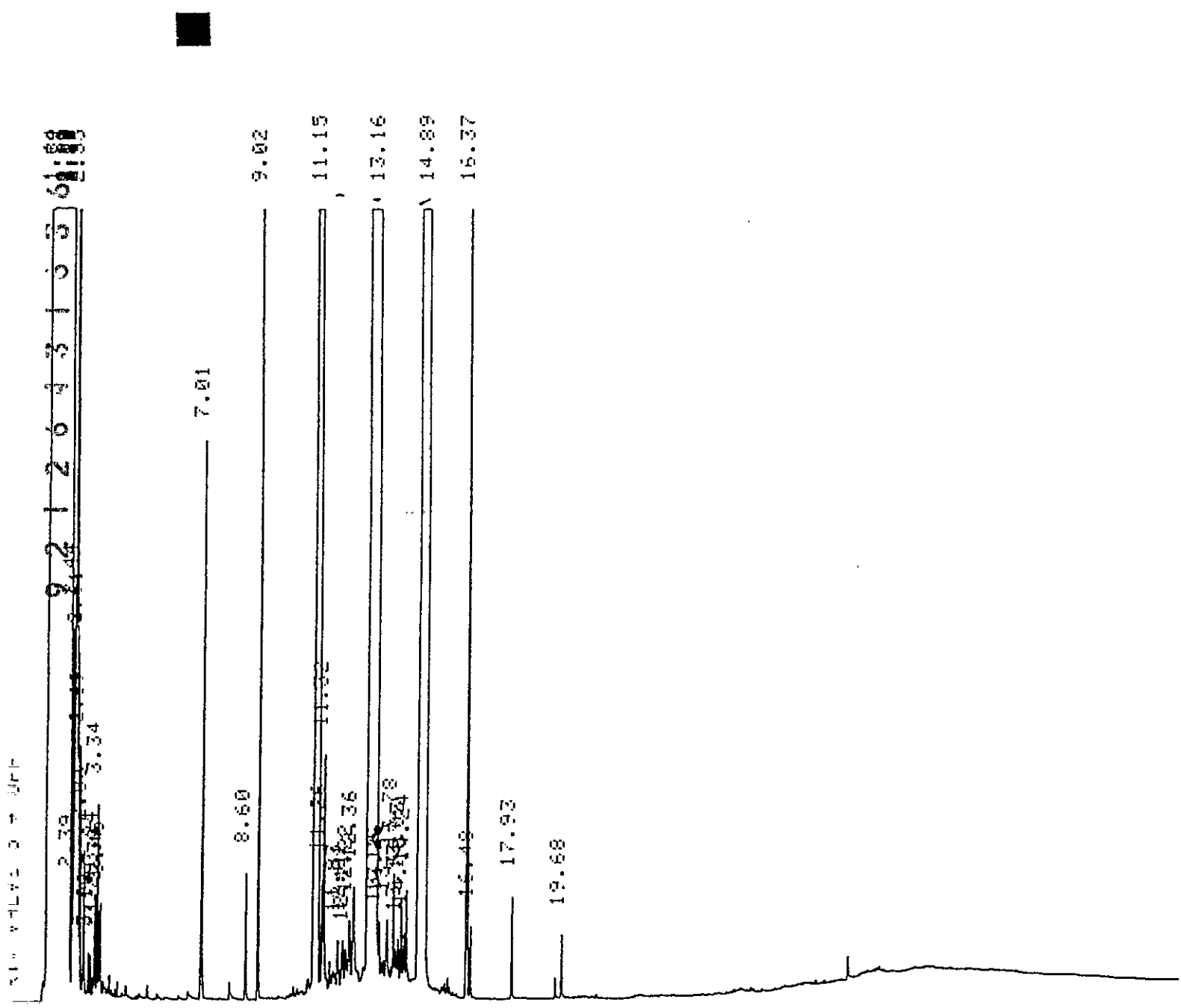
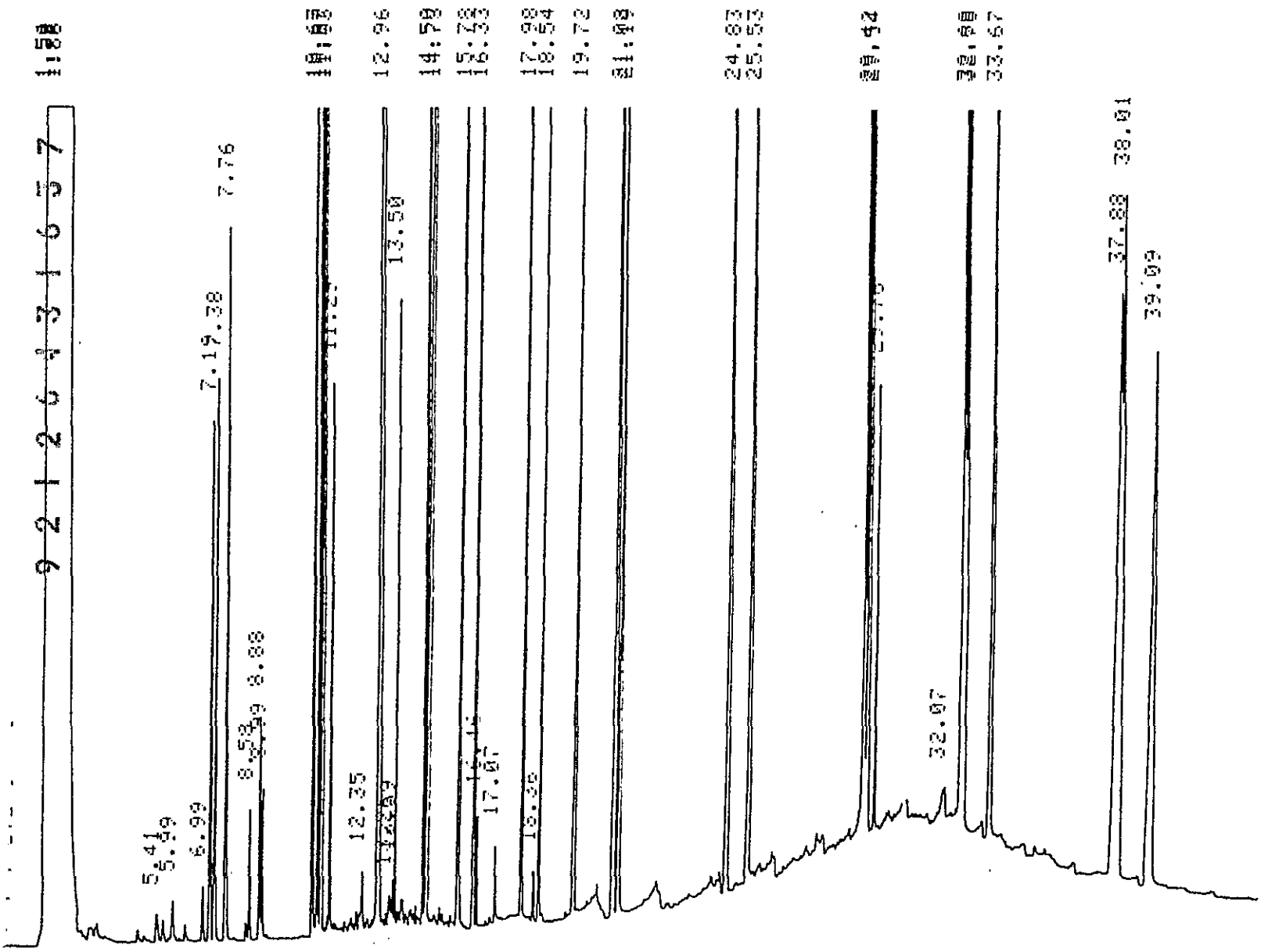
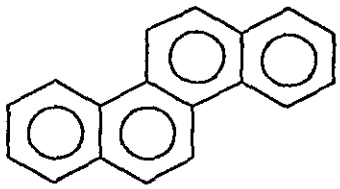
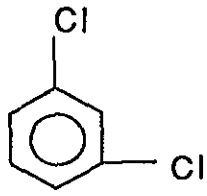
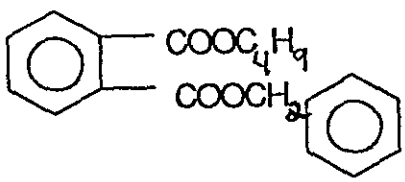
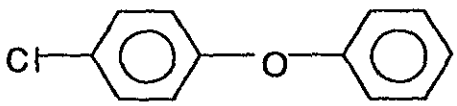
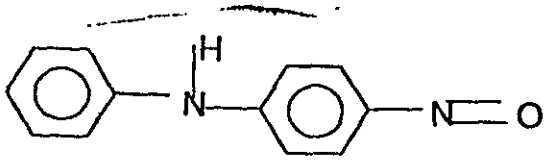
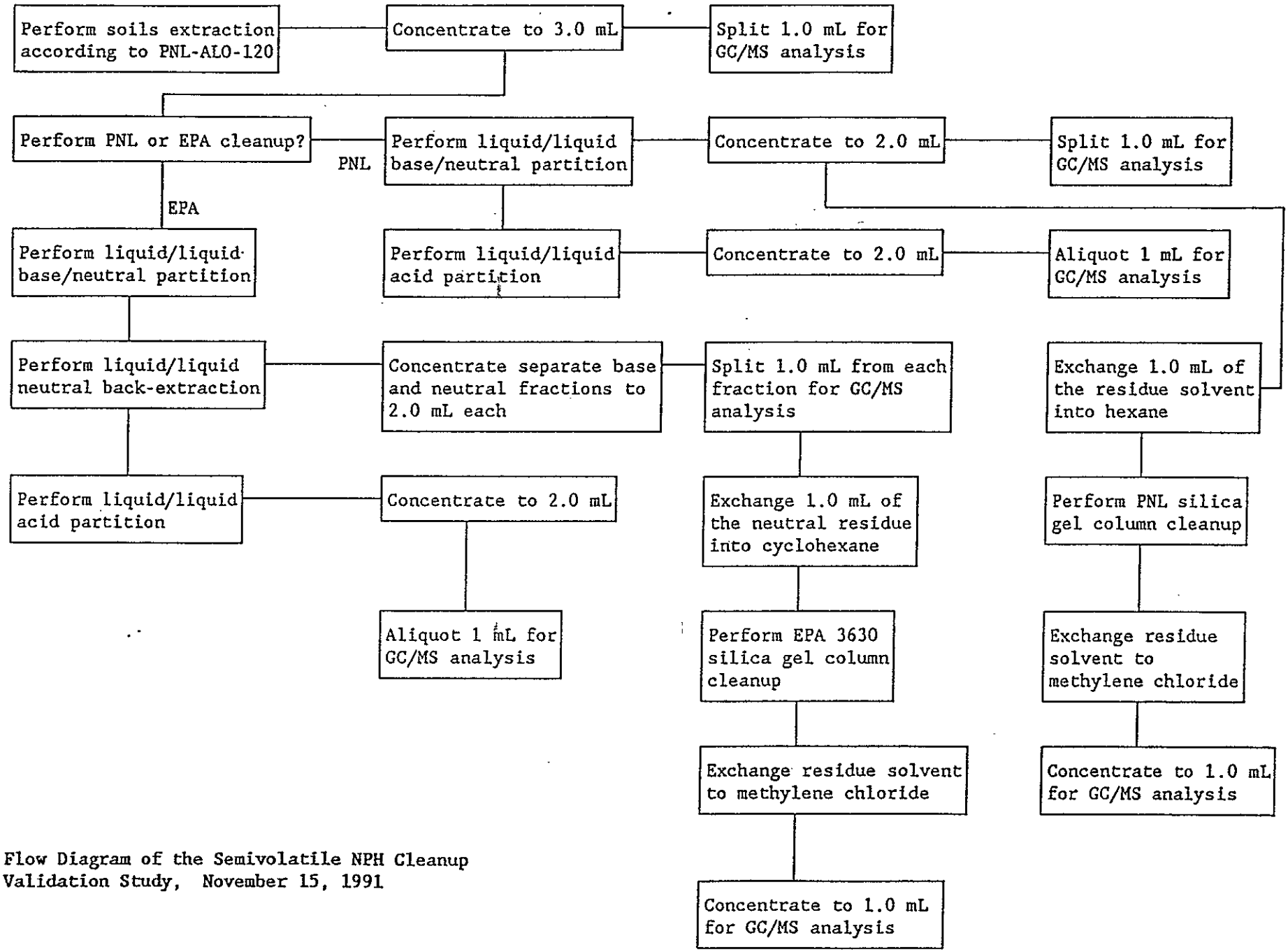


Figure 6. GC chromatogram of the standard mix containing NPH, base neutral mix 2, and PNAs through silica column eluted with methylene chloride:hexane and then methylene chloride after original elution with hexane.



SEMIVOLATILE RECOVERIES FOR SELECT ANALYTES

COMPOUND	STRUCTURE	RECOVERY
CHRYSENE		100%
1,3-DICHLOROBENZENE		70%
BUTYLBENZYLPHTHALATE		0%
4-CHLOROPHENYL PHENYLETHER		0%
N-NITROSODIPHENYLAMINE		0%



Flow Diagram of the Semivolatile NPH Cleanup Validation Study, November 15, 1991

Single-Shell Tank Unit Manager Meeting

Single-Shell Tank Closure (M-09-00)

Waste Tank Operations and Disposal/ Environmental Restoration

November 21, 1991

Milestone Description

Tri-Party Agreement Milestone M-09-00 Commitment is to Complete SST Closure by June 2018

- Complete preparation of supplemental environmental impact statement (SEIS) and issue draft for public review by June 2002 (M-09-01)

- Submit closure plan to Ecology for approval by December 2003 (M-09-02)

Status

Workscope Has Been Initiated In FY 1992 To Support An Accelerated SEIS

- Systems Engineering Study
  - Study reviewed with regulators during work shops and again with SST NAS Panel during meeting held in September and October
  - Formal comments requested from regulators and NAS Panel
  - DOE currently has study in review
  - Revised draft is scheduled for next review cycle in February
- SEIS Scope/Schedule
  - Undergoing review by DOE-HQ
  - Schedule for preparing SEIS will not be known until Spring 1992
- SST System Closure/Corrective Action Work Plan
  - Ecology delinquent on notice-of-deficiency
  - Revision to work plan has been initiated to reflect change in pre-closure pathway

Status (Continued)

- RPP Field Characterization Activities
  - Initiated preparation of work plans to support proposed accelerated SST-SEIS
  - Initiated preparation of hazardous assessment report
- Key Documents Issued
  - Systems Engineering Study for the Closure of Single-Shell Tanks (WHC-EP-0405), Draft, Volumes 1-6
  - Preliminary Performance Assessment Strategy for Single-Shell Tank Waste Disposal (WHC-EP-0379)
  - Regulatory Compliance Analysis for the Closure of Single-Shell Tanks (WHC-EP-0404)

Planned Actions (next six months)

Preclosure Activities Will Increase Over Next Six Months

- Initiate preparation of SEIS Notice of Intent (NOI) for the SSTs closure
- Issue 100% draft Systems Engineering Study to the NAS, Environmental Protection Agency, and Ecology for review and comment
- Issue proposed schedule for accelerating preparation of SEIS
- Enter into discussion with regulators in areas of significant importance
  - Second round of Notice of Deficiency (NOD) comments on SST System Closure/Corrective Action Work Plan (comments not received)
  - Comments to be provided on SST Systems Engineering Study
  - Pathway and schedule to accelerate pre-closure activities to meet SST Closure commitments

Milestone Assessment

SEIS and closure plan preparation are on schedule, however SST closure in jeopardy

- Work is on schedule toward the SEIS (M-09-01) and the closure plan (M-09-02)

- Milestone (M-09-00) to complete SST closure by June 2018 is in jeopardy unless preclosure activities are accelerated

- Preclosure activities requiring acceleration include:

  - SEIS/Record Of Decision (ROD) preparation
  - SST Waste and Field Characterization
  - Technology Development
  - Concurrent permitting with facility design

Milestone Assessment

No Spending Variance Recorded For Workscope In Support To M-09 Ending FY 1992

- FYTD Budget: $3.0M; Cost: $3.0M; Variance: $0

Technical scope changes for acceleration of preclosure activities are under evaluation

- Systems Engineering studies indicate that preclosure pathway alternatives require acceleration
- Strategy for acceleration of SST SEIS/ROD process being evaluated
- Strategy for SST waste characterization being evaluated to better support preparation of SEIS
- Strategy for field characterization of SST Operable Units being evaluated to support preparation of SEIS
- Technical risk assessment for double-shell tank waste needs to be factored into SST preclosure pathway